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UNITED STATES BUREAU OF EDUCATION
BULLETIN, 1915, NO. 34 - - - - - - - WHOLE NUMBER 661

MONTHLY RECORD OF CURRENT EDUCATIONAL PUBLICATIONS

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SEPTEMBER, 1915

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MONTHLY RECORD OF CURRENT EDUCATIONAL PUBLICATIONS.

CONTENTS.—Introductory notes—Publications of associations—Educational history—Current educational conditions—Pedagogics and didactics—Educational psychology; Child study—Special methods of instruction—Special subjects of curriculum—Kindergarten and primary school—Rural education—Secondary education—Teachers: Training and professional status—Higher education—School administration—School management—School architecture—School hygiene and sanitation—Physical training—Play and playgrounds—Social aspects of education—Child welfare—Moral education—Religious education—Manual and vocational training—Vocational guidance—Agricultural education: Home economics—Commercial education—Professional education—Education of women—Education of deaf—Exceptional children—Education extension—Libraries and reading—Bureau of Education: Recent publications—Bulletin of the Bureau of Education.

INTRODUCTORY NOTES.

The following is a selection of recent educational books of importance, the numbers in parentheses referring to the full entries in this bulletin: Dewey, Schools of to-morrow (883); Haggerty, Arithmetic; a cooperative study in educational measurements (914); Jenkins, Reading in the primary grades (928); Wallis, Teaching of geography (933); Judd, Psychology of high-school subjects (951); Ballou, Appointment of teachers in cities (955); Taylor and Haight, Vassar (988); Curtis, Practical conduct of play (1016); Roman, Industrial and commercial schools of the United States and Germany (1044); Bloomfield, Youth, school, and vocation (1046); Mathews, The dean of women (1059); Fay and Eaton, Instruction in use of books and libraries (1076).

The present number of the record immediately follows in series the issue for June, 1915, publication of this bulletin being suspended during July and August.

Only publications of the Bureau of Education are available for free distribution by this Office. All others here listed may ordinarily be obtained from their respective publishers, either directly or through a dealer, or, in the case of an association publication, from the secretary of the issuing organization.

Books, pamphlets, etc., intended for inclusion in this record should be sent to the library of the Bureau of Education, Washington, D. C.

PUBLICATIONS OF ASSOCIATIONS

871. **Brown university teachers association.** [Proceedings of the thirteenth annual meeting, Providence, R. I., April —, 1915] Education, 35: 615–64, June 1915.

Contains: 1. K. C. M. Sills: Character, a neglected college entrance requirement, p. 615–19. 2. O. E. Randall: Character building in college, p. 620–27. 3. G. B. Lawson: Character—the secondary school; its opportunity, p. 628–32. 4. E. G. Hapgood: Efficiency in the public secondary school, p. 633–51. 5. Lewis Perry: Efficiency in secondary school education, p. 652–59. 6. H. C. Bumpus: Efficiency in the university, p. 660–64.

872. **Carnegie foundation for the advancement of teaching.** Ninth annual report of the president and treasurer. New York city, October 1914. 154 p. 8°.

Contains: 1. The study of legal education, p. 16–18. 2. Pensions, p. 21–28. 3. Pensions for public school teachers, p. 28–44. 4. Standard and standardizers, p. 53–56. 5. The Vermont report, p. 56–59. 6. The American association of university professors, p. 59–61. 7. The classification of medical schools, p. 61–73. 8. Medical education on the Pacific coast, p. 74–92. 9. Medicine and politics in Ohio, p. 92–106. 10. State educational reports, p. 106–18. 11. Educational surveys, p. 118–23.

873. **Indiana state teachers association.** Proceedings and papers . . . October 29–31, 1914, Indianapolis. 254 p. 8°. (J. B. Pearcy, secretary-treasurer, Indianapolis, Ind.)

Contains: 1. W. E. Stone: [Social service] p. 14–18. 2. S. S. Wise: The task of a teacher in a democracy, p. 19–26. 3. J. Y. Joyner: Teacher-citizen and citizen-maker, p. 28–31. 4. J. E. Russell: Education for citizenship, p. 34–39. 5. W. D. Lewis: Socializing the high school, p. 47–57. 6. W. C. Bagley: The social significance of the teacher's responsibility for discipline, p. 58–65. 7. J. Y. Joyner: The adaptation of the work of the country school to the life and needs of the country community, p. 66–70. 8. W. D. Lewis: Essentials in the grades, p. 71–76. 9. J. E. Russell: Education for leadership, p. 79–87. 10. J. Y. Joyner: The teacher's work and reward, p. 110–15. 11. W. C. Bagley: The social achievements of the American public school, p. 116–19. 12. J. F. Haines: Value of a county educational survey, p. 150–53. 13. J. A. White: The recognition of commercial subjects in the entrance requirements of colleges and universities, p. 170–72. 14. F. C. Tilden: The teachers' institute—past, present, and future, p. 207–10.

874. **National education association. Department of superintendence.** Proceedings at the annual meeting held at Cincinnati, Ohio, February 23–27, 1915. Published by the Association, 1915. 255 p. 8°. (E. C. Warriner, secretary, Saginaw, Mich.)

Contains: 1. C. H. Judd: The protection of professional interests, p. 21–25. 2. A. E. Winship: Textbooks—educationally, commercially, and politically, p. 26–30. 3. B. R. Payne: The spiritual and professional assets of the normal school, p. 31–38. 4. C. N. Kendall: The training of teachers in service, p. 39–44. 5. A. D. Dean: A state program for industrial and social efficiency, p. 44–48. 6. C. A. Prosser: The evolution of the training of the worker in industry, p. 48–60. 7. R. L. Cooley: Continuation school work in Wisconsin, p. 60–65. 8. E. C. Warriner: The all-day trades school, p. 65–71. 9. W. L. Chandler: The field for the corporation school and its relation to the public schools, p. 71–74. 10. John Lapp: National aid for vocational education, p. 74–83. 11. F. E. Spaulding: Problems of vocational guidance, p. 83–87. 12. Should our educational system include activities whose special purpose is preparation for war? [by] N. C. Schaeffer, p. 89–96; [by] J. H. Finley, p. 96–102. 13. J. M. Green: Principles underlying the determination of a course of study, p. 102–6. 14. Ellor C. Ripley: Should essentials of the course of study vary to satisfy social demands in different school districts? Within the same district? p. 106–10. 15. Frank W. Miller: The demands of rural school districts, p. 110–15. 16. David Snedden: The pros and cons of the Gary system, p. 115–25. 17. W. H. Taft: Is a national standard of education practical? p. 125–31. 18. The investigation of the efficiency of schools and school systems [by] J. H. Van Sickle, p. 131–36; [by] L. P. Ayres, p. 136–41; [by] C. N. Kendall, p. 141–47; [by] W. H. Maxwell, p. 147–54. 19. H. B. Wilson: Report of Committee on economy of time in elementary education—minimum essentials of a course of study. The objectives and guiding principles of the report, p. 154–62; Discussion, p. 162–67. 20. M. P. Shawkey: Financial support of the public schools, p. 167–70. 21. A. G. Yawberg: The appointment, salary, and tenure of teachers, p. 171–75. 22. W. E. Chancellor: The selection of county superintendents, p. 175–79. 23. F. G. Blair: The determination of the school district, p. 179–82. 24. F. H. Evans: The essence of success in evening vocational work, p. 182–85. 25. The education of adult immigrants [by] Ben Blewett, p. 191–92; [by] L. M. Dougan, p. 192–93; Discussion, p. 193–97. 26. Adelaide S. Baylor: The backward pupil, p. 197–99. 27. F. B. Cooper: The mentally defective pupil, p. 199–201. 28. G. I. Aldrich: The delinquent pupil, p. 201–4. 29. J. E. Bryan: The anemic

pupil, p. 204–9. 30. W. C. Griggs: Current practices in the appointment of teachers, p. 213–16. 31. E. C. Elliott: How shall the efficiency of teachers be tested and recorded? p. 217–21. 32. C. C. Green: The promotion of teachers on the basis of merit and efficiency, p. 221–24. 33. Joseph Rosier: A satisfactory basis for the promotion of pupils, p. 224–27. 34. S. O. Hartwell, The administration of compulsory attendance laws, p. 232–36. 35. Helen T. Woolley: The issuance of work permits and its bearing on other school problems, p. 237–42.

Paper no. 1 also appears in Educational administration and supervision, 1: 355–61, June 1915; no. 8 in Educational monthly, 1: 123–28, June 1915; no. 14 in Journal of education, 81: 650–52, June 17, 1915; no. 35 in School and society, 1: 726–33, May 22, 1915.

875. **Utah educational association.** Proceedings of the twentieth annual convention, Salt Lake City, November 23–25, 1914. Utah educational review, 8: 6–60, December–January, 1914–1915.

Contains: 1. D. E. Phillips: Essentials of success not found in books, p. 15–17. 2. C. H. Judd: The cultivation of initiative in students, p. 19–26. 3. Alice E. Rowe: Latin in the seventh and eighth grades of our public schools, p. 31–33. 4. Milton Bennion: Moral instruction in the high school, p. 35–36. 5. E. G. Gowans: Pre-vocational education in the seventh and eighth grades, p. 36–38. 6. C. G. Plummer: Why we play, p. 53–58.

EDUCATIONAL HISTORY

876. **Bishop, Morris S.** The schoolbooks of our ancestors. Catholic educational review, 10: 23–34, June 1915.

877. **Coissac, J.-B.** Les écoles de l'ancienne Écosse. Revue internationale de l'enseignement, 35: 197–209, May–June 1915.

This article forms a chapter of the author's work entitled "Institutions scolaires de l'Écosse depuis les origines jusqu'en 1560," Paris, Larousse.

878. **Jernegan, Marcus W.** The beginnings of public education in New England. School review, 23: 361–80, June 1915.

Part two of an interesting series on the history of the "free school" movement in New England.

879. **Lemonnier, Henry.** Notes sur l'ancienne Sorbonne. Revue internationale de l'enseignement, 35:184–96, May–June 1915.

880. **Spranger, Eduard.** Der zusammenhang von politik und pädagogik in der neuzeit; umrisse zu einer geschichte der deutschen schulgesetzgebung und schulverfassung. (Fortsetzung) Deutsche schule, 19: 225–33, April 1915.

CONTENTS.—III C. 2. Unter dem zeichen der reaktion und des liberalismus (1819–1870.) 1. Abschnitt: Die preussische volksschule von 1819–1840.

For preceding articles in series, see Current educational publications, 1914, item 1478.

881. **Tews, Johannes.** Ein jahrhundert preussischer schulgeschichte; volksschule und volksschullehrerstand in Preussen im 19. und 20. jahrhundert. Leipzig, Quelle & Meyer, 1914. 270 p. 8°.

CURRENT EDUCATIONAL CONDITIONS

882. **Buisson, Ferdinand.** La France et l'école; pendant la guerre—après la guerre. Conférence faite à la Ligue de l'enseignement . . . sous la présidence de M. Paul Deschanel. Paris, Librairie Delagrave [1915] 32 p. 8°.

Reprinted from Revue pédagogique, 66: 229–56, April 1915.

Considers how the school has served France for the present war, and how the school will serve the nation after the war.

883. **Dewey, John** *and* **Dewey, Evelyn.** Schools of to-morrow. New York, E. P. Dutton & company [1915] 316 p. illus. 12°.

CONTENTS.—1. Education as natural development.—2. An experiment in education as natural development.—3. Four factors in natural growth.—4. Reorganization of the curriculum.—5. Play.—6. Freedom and individuality.—7. Relation of the school to the community.—8. The school as a social settlement.—9. Industry and educational readjustment.—10. Education through industry.—11. Democracy and education.

The type of school described in this volume shows tendencies that seem truly symptoms of the times; namely, the movement toward greater freedom and an identification of the child's school life with his environment and outlook, and the recognition of the rôle education must play in a democracy. The following schools are used for illustration: Fairhope, Ala.; Teachers' college, New York city; Francis Parker school, Chicago; University school, Columbia, Mo.; Public schools, Indianapolis, Ind.; Interlaken school, Ind.; Howland school, Chicago; Play school, New York city; Cottage school, Riverside, Ill.; Gary, Ind., schools.

884. **Herget, Ant.** Die wichtigsten strömungen im pädagogischen leben der gegenwart. I. t. Arbeitsschule. Kunsterziehung. Staatsbürgerliche erziehung. Moralpädagogik. Prag [etc.] A. Haase [1914] v. 1. ports. 8°.

885. **Höfler, Alois.** Unser krieg und die bildungsziele der zukunft. Akademische rundschau, 3: 47–54, October 1914–January 1915.

The author, professor of psychology at the University of Vienna, directs attention to the lessons which the European war should teach, which are, in the main, less intellectualistic instruction and more moral training.

886. **Moritz, Eduard.** Das schulwesen in Deutsch-Südwestafrika. Berlin, D. Reimer (E. Vohsen), 1914. xi, 240 p. table, map. 8°.

887. **Owen, William Bishop.** New Orleans and its schools. A city that surveys itself. American school, 1: 127–30, May 1915.

How the continuous survey in New Orleans is conducted, and some of the difficulties growing out of it.

888. **Poincaré, Lucien.** La science française à l'exposition de San-Francisco. Revue internationale de l'enseignement, 35: 161–68, May-June 1915.

A characterization of French science as illustrated by the French exhibit at the exposition in San Francisco.

889. **Reid, Sydney.** Our castles of enlightenment. Modern schools, like old-time castles, are becoming centers of culture and enlightenment. Mother's magazine, 10: 39–42, 72, August 1915.

The writer says that the American public-school ideals have been changing, broadening, extending. The American school of the future is to be a place of instruction, growth and play for all of the children and most of the grown people. Tells of the progress of neighborhood centers, etc., in New York city.

890. **Woodward, Elizabeth Ash.** Hopeful aspects of new elementary school movements. Kindergarten review, 25: 610–33, June 1915.

"Summarizing the aspects of modern education which have been found most hopeful for the child we find: joy, physical health, natural atmosphere in work and play, creative activities, concrete live motives for work leading to increased responsibility, power, effort, and attention, health of spirit and, in short, natural unbroken development of growing powers (native or grafted) through wise nurture."

891. **Zollinger, F.** Schulorganisation und volksbildungsbestrebungen in der Schweiz. Archiv für pädagogik, 3: 49–58, January 1915.

An interesting survey of current progress in education in Switzerland.

PEDAGOGICS AND DIDACTICS.

892. **Bachman, Frank P.** The quality of instruction versus the subject matter of instruction. Elementary school journal, 15: 529–42, June 1915.

Concluded from May number. Criticises the multiplicity of topics taught in the schools. Advocates concentration on a few large topics, in order that children may have "the time to acquire the needed richness of details."

893. **Beecher, Walter J.** *and* **Faxon, Grace B.,** *eds.* Methods, aids and devices for teachers . . . contributed by teachers engaged in schoolroom work and specialists in educational methods. Dansville, N. Y., F. A. Owen publishing co., 1915. 2 v. illus. f°.

894. **Goodnow, Frank Johnson.** Modern educational ideals. School and society, 1: 757–67, May 29, 1915.

Inaugural address read at the Johns Hopkins university on May 20, 1915.

The author says: "The educational ideals of the present day are then very comprehensive in their scope. They include the disciplinary training of the young along general lines, the transmission of that particular knowledge of the past which will do most to develop persons of culture, the application of scientific methods to the conduct of the ordinary affairs of life, the increase of our knowledge through research and investigation, and the rendering of public service."

Also in Johns Hopkins alumni magazine, 3: 257–75, June 1915.

895. **Hall-Quest, Alfred L.** Measuring the ultimate product. School and society, 1: 767–73, May 29, 1915.

Writer says the ultimate product of education is the efficient leader. Leadership must come to mean something that is measurable. A beginning has been made and all interested in education should rally to the support of the noble project of finding additional ways and means of measuring the ultimate product of education.

896. **Jessup, W. A.** Science and education. Teaching, 1: 5–15, May 1, 1915.

An address given February 12 at the Annual conference of superintendents of cities of the second and third class, at Emporia, Kans.

This article brings out the fact that experimentation, observation, and testing for results are the operations being urged in the effort to introduce science into education.

897. **Martin, George H.** Real education can never be standardized. Journal of education, 82: 5–6, July 8, 1915.

From Boston Globe.

The effort to standardize education can only result in mechanizing it. Only the externals, as school age, course of study, textbooks, etc., can be standardized. Education itself can not be standardized.

898. **Meriam, J. L.** How well may pupils be prepared for high school work without studying arithmetic, grammar, etc., in the grades? Journal of educational psychology, 6: 361–64, June 1915.

In the work of the University elementary school at the University of Missouri emphasis is given to the immediate needs of the pupils rather than to preparation for high school work. The pupils throughout the seven grades pursue four studies: Observation of nature and industrial activities, Playing games of present interest, Handwork (making things of immediate usefulness), and Enjoyment of stories, pictures, music. Reading, writing, arithmetic and other such "common branches" are not taught as such at all. An investigation has been made to find out the standing of these pupils in high school work. The investigation showed that the studies pursued in the University elementary school prepared pupils for high school work as well as the study of the "common branches."

899. **Meumann, Ernst.** Über volkserziehung auf nationaler grundlage. Zeitschrift für pädagogische psychologie und experimentelle pädagogik, 16: 161–85, April 1915.

The author points out particularly the value of extra-school educational agencies and considers the problems of their systematic organisation.

900. **Montaigne, Michel Eyquem de.** The teacher's Montaigne, by Geraldine E. Hodgson. London [etc.] Blackie and son limited, 1915. 224 p. 12°. (Blackie's library of pedagogics)

901. **Munroe, James Phinney.** What modern education means. School and society, 1: 829–32, June 12, 1915.

Address before the Public education association of Worcester, Mass., May 14, 1915.

902. **Pease, Henry.** Functions and limitations of the public school. School and society, 1: 911–18, June 26, 1915.

903. **Romano, Pietro.** La pedagogia dei valori e la cultura. Rivista pedagogica, 8: 383–97, May 1915.

A philosophical discussion of the relation between education and cultural values.

904. **Russell, William F.** Are they "new and untried"? Educational review, 50: 61–70, June 1915.

Says that the most important task imposed upon the public schools is training for leadership. The curriculum and methods used should be directed toward that end.

905. **Schäfertöns, Heinrich.** Die sozialpädagogischen gedanken Schleiermachers. Deutsche schule, 19: 27–38, 98–108, January, February 1915.

The author sketches Schleiermacher's ideas and compares them with the ideas of later and contemporary writers on social pedagogy, among the latter Scherer, Barth, and Rissmann.

906. **Shields, Thomas Edward.** The cultural and vocational aims in education. Catholic educational review, 10: 46–56, June 1915.

The writer says that "Industrial efficiency is good in itself and greatly to be desired, but it never can be the legitimate and ultimate aim of education ... The ultimate aim must be single; it never can be anything else than the attainment of God ... Nothing that conflicts with this aim can be tolerated."

907. Teaching. Vol. 1, no. 13, April 15, 1915. Vacation activities.

Contains: 1. H. M. Culter: Vacation activities for children, p. 6–8. 2. Lilly Heffelfinger; Vacation activities in Kansas towns, p. 8–12. 3. Rose Tinkler: Handwork in vacation, p. 12–14. 4. May V. Paterson: School gardening out of school, p. 15–16. 5. Ruby Peck: School excursions, p. 17. 6. Hulda Froom: Vacation drama, p. 19–20. 7. Hubert Strayer: Raising money for vacation activities, p. 20.

EDUCATIONAL PSYCHOLOGY; CHILD STUDY.

908. **Baldwin, Bird T.** Standardization. Educational bi-monthly, 9: 379–87, June 1915.

Selected references on measuring scales and standards, p. 383–87.

Discusses briefly (1) Measuring scales in various subjects, (2) Standard tests, (3) Score cards in physiological and pedagogical ages.

909. **Bloch, Ernst.** Intelligenzprüfungen an hilfsschulkindern nach der methode von Binet-Simon. Zeitschrift für kinderforschung, 20: 330–42, April-May 1915.

To be concluded.

910. **Brecht, F. A.** Methode zur schulung der phantasie. Berlin, R. Halbeck [1915?] 160 p. front. 8°.

911. **Conrad, Waldemar.** Das psychische gleichgewicht als eines der erziehungsziele und die grundformen seiner störungen. Zeitschrift für pädagogische psychologie und experimentelle pädagogik, 16: 185–93, April 1915.

To be continued.

Develops a concept of "psychic equilibrium" as embodying, for pedagogical purposes, the new insight into psychic constitution gained through the psychoanalytic methods of Freud and Jung.

912. **Dawson, Jean.** Measuring the end-product. Pedagogical seminary, 22: 290–95, June 1915.

A test given to some high school graduates showed that they failed to recognize the most common things in their environment; they look with unseeing eyes, have feeble powers of discrimination, and fail in concise thinking and accuracy of expression.

913. **Giese, Fritz.** Über die testdiagnose. Zeitschrift für pädagogische psychologie und experimentelle pädagogik, 16: 193–97, April 1915.

On the combination of experimental tests with the "psychographic" method elaborated by the "Institut für angewandte psychologie" (Stern and Lipmann, directors).

914. **Haggerty, M. E.** Arithmetic: a cooperative study in educational measurements. [Bloomington, Ind., 1915] p. 385–508. 8°. (Indiana university bulletin. vol. XII, no. 18. Indiana university studies, 27)

915. **Jenkins, Frances.** A test of the ability of children to use language forms. Journal of educational psychology, 6: 335–44, June 1915.

"The results of a series of tests with dictation exercises to determine words misspelled, words wrongly used, and sentences correctly formed by fifth to eighth-grade pupils. The practical effort of a school supervisor to obtain objective evidence of the work of individual pupils."

916. **Stern, H.** Die psychologische fortbildung des lehrers. Pädagogische zeitung, 44: 179–80, April 8, 1915.

917. **Thorndike, Edward L.** Means of measuring school achievements in handwriting. Educational administration and supervision, 1: 300–305, May 1915.

918. ———. Means of measuring school achievement in spelling. Educational administration and supervision, 1: 306–12, May 1915.

919. **Witham, Ernest C.** All the elements of handwriting measured. Educational administration and supervision, 1: 313–24, May 1915.

The writer says that we have enough methods for measuring writing. What we need now is a comparative application of the existing scales by teachers of writing in sufficient quantity to determine the practical and usable from the theoretical and unusable material. "The present article is a study of the method of measuring handwriting, described in the School board journal, applied to two seventh-grade classes."

920. **Witmer, Lightner.** On the relation of intelligence to efficiency. Psychological clinic, 9: 61–86, May 15, 1915.

SPECIAL METHODS OF INSTRUCTION.

921. Cinema pictures and their wonderful educational possibilities. Teacher's world (London) 13: 216, June 2, 1915.

922. **Opdycke, John B.** The newspaper and the magazine in the classroom. School and society, 1: 832–38, June 12, 1915.
Tells of the value of the magazine and newspaper as teaching mediums, and shows how they may be used to best advantage.

SPECIAL SUBJECTS OF CURRICULUM.

923. **Abbott, Allan.** Contemporary literature in the high school. Illinois association of teachers of English—Bulletin, 7: 1–10, April 15, 1915.
Discusses newspapers, magazines, novels, poetry, and drama.

924. **Bonham, Milledge L., *jr.*** Recent history: to what extent to the exclusion of other history. Louisiana school work, 3: 2–12, May–June 1915.
Read before the Mississippi Valley historical association, at New Orleans, La., April 24, 1915. Would stress history of the last 50 years, especially the last 15 at the expense of the non-essentials in earlier periods.

925. **Davis, Calvin O.** Realizable educational values in history. History teacher's magazine, 6: 167–78, June 1915.
"A paper read before the District conference of teachers of history in secondary schools, Gary, Ind., February 27, 1915."

926. **Dykema, Peter W.** Community music in its relation to the supervisor of school music. School music, 16: 8–9, May–June 1915.
Discussion: p. 9–12.

927. **Ferren, H. M.** The joint mission of Latin and German in America. Monatshefte für deutsche sprache und pädagogik, 16: 177–81, June 1915.
Basis for their mission: I. Both are inflectional languages, study and use of which have disciplinary value. II. Both are keys to "treasure chambers which the English hand has not unlocked for us."

928. **Jenkins, Frances.** Reading in the primary grades. Boston, New York [etc.] Houghton Mifflin company [1915] 125 p. 12°. (Riverside educational monographs, ed. by H. Suzzallo)

929. **Lane, Frank H.** Faculty help in intercollegiate contests. Quarterly journal of public speaking, 1: 9–16, April 1915.
Thinks that contests at present are not fair and that they can be fair only when we have a definite standard that will regulate the influence of the instructor. Mentions three ways of improving the situation.

930. **Pound, Louise.** British and American pronunciation: retrospect and prospect. School review, 23: 381–93, June 1915.
Says that we cannot contemplate "the spectacle of the ultimate parting from British English, in either sound or form, with much enthusiasm."

931. **Reynolds, George Fullmer.** For minimum standards in English. English journal, 4: 349–56, June 1915.
Advocates a definitely stated standard of achievement in English for the grade schools, the high schools, and the college freshman.

932. Suggestions for the improvement of geography teaching. Journal of geography, 13: 297–301, June 1915.
Report of a California committee appointed in December, 1913; Report submitted April, 1915. Roy E. Dickerson, chairman.

933. **Wallis, B. C.** The teaching of geography. Cambridge, University press, 1915. 221 p. illus. 8°.

934. **Warstat, Willi.** Die schulzeitschrift und ihre bedeutung für erziehung, unterricht und jugendkunde; mit proben und abbildungen aus den "Monatsheften des Altonaer reformrealgymnasiums." Leipzig und Berlin, B. G. Teubner, 1915. 95 p. illus. 8°.

935. **Warden, Nelle.** Versification in the elementary school. American schoolmaster, 8: 241–53, June 1915.
Gives the results of two years' successful teaching of versification in the grades.

936. **Wolff, Georg.** Der mathematische unterricht der höheren knabenschulen Englands. Leipzig und Berlin, B. G. Teubner, 1915. 207 p. illus., diagrs. 8°. (Beihefte zur Zeitschrift für mathematischen und naturwissenschaftlichen unterricht. 3. Berichte und mitteilungen, veranlasst durch die Internationale mathematische unterrichtskommission. 2. folge. II)

KINDERGARTEN AND PRIMARY SCHOOL.

937. **Blow, Susan E.** The kindergarten and the primary grades. Kindergarten review, 25: 593–609, June 1915.

938. **Hailmann, W. N.** Is Montessori the educational Columbus? Sunset magazine, 34: 1110–15, June 1915.

"Contains what is perhaps the first thorough critical analysis of the principles underlying the Montessori method, published in America."

939. **Hurd, Anna C.** The Montessori method applied to deaf children. Volta review, 17: 239–42, June 1915.

Experiments with a class at work in the Rhode Island school for the deaf, Providence, R. I. Illustrated.

940. **Marsh, L. Alden.** Kindergarten versus nonkindergarten children with respect to certain traits of character. Elementary school journal, 15: 543–50, June 1915.

A study of 380 grade children, in 12 grades of the Edgewood public school, Pittsburgh, Pa. Writer says the method "is one of comparison based on teachers' estimates of certain traits of character. There is no attempt to take into account native ability." Advantages lay with pupils trained in the kindergarten.

RURAL EDUCATION.

941. **Georgia. Department of education.** Educational survey of Bulloch County, Georgia. By M. L. Duggan, rural school agent ... [Atlanta?] 1915. 72, [6] p. illus. 8°.

No. 4 in a series of educational surveys of the counties of Georgia.

942. ——— ——— Educational survey of Morgan County, Georgia. By M. L. Duggan, rural school agent ... [Atlanta?] 1915. 77 p. illus. 8°.

No. 5 in a series of educational surveys of the counties of Georgia.

943. **Lasher, George Starr.** Science in rural school administration. Teaching, 1: 15–24, May 1, 1915.

A report of work done with the Michigan State department of public instruction investigating rural school problems.

Discusses chiefly hygiene and sanitation in rural schools.

944. Nebraska rural school standards. Nebraska educational bulletin, 1: 1–13, June 1915.

945. **Pickard, A. E.** Rural education; a complete course of study for modern rural schools. St. Paul, Minn., Webb publishing company, 1915. 429 p. illus. 12°

"The outgrowth of a series of lectures on rural school organization in the Minnesota state summer schools for teachers, and of several revised courses of study planned for and executed in rural schools under the supervision of the author."

946. **United States. Department of agriculture.** Reports on Needs of farm women. Washington Government printing office, 1915. 4 v. 8°.

Extracts from letters received from farm women in response to an inquiry "How the U. S. Department of agriculture can better meet the needs of farm housewives," with special reference to the provision of instruction and practical demonstrations in home economics under the act of May 8, 1914, providing for cooperative agricultural extension work, etc.

CONTENTS.—Report no. 103. Social and labor needs of farm women.—Report no. 104. Domestic needs of farm women.—Report no. 105. Educational needs of farm women.—Report no. 106. Economic needs of farm women.

947. Utah educational review. Vol. 8, nos. 9–10, May–June 1915. Consolidation of schools in Utah.

SECONDARY EDUCATION.

948. **Douglass, Aubrey Augustus.** The present status of the junior high school. [Worcester, Mass., 1915] p. 252–74. 8°.

Reprinted from the Pedagogical seminary, 22: 252–74, June 1915.

Bibliography: p. 274.

Gives a list of the cities having junior or intermediate schools, and then discusses the following aspects of the subject: Grades found in junior high school, Entrance requirements, Enrolment figures, Courses of study, Features of organization, Action of colleges and universities, and Weak points.

949. **Fox, George L.** The injustice of the free high school to the wage-earning classes. School and society, 1: 652–59, June 12, 1915.

The writer says that "The free high-school system, as it exists in the United States to-day, is unjust robbery of the working classes under the form of lawful taxation." Advocates imposing high-school tuition fees, and tells of the movement in Connecticut to bring this about.

950. **Holley, C. E.** Curriculum differentiation and administration in typical high schools. Educational administration and supervision, 1: 332–40, May 1915.

"The facts on which this paper is based were secured from the bulletins of 54 high schools, located in cities of 4,000 or more inhabitants, selected at random throughout the United States. The bulletins were printed between the years of 1912 and 1914."

951. **Judd, Charles Hubbard.** Psychology of high-school subjects. Boston, New York [etc.] Ginn and company [1915] 515 p. 12°.

952. **Mackie, Ransom A.** A model high school curriculum. Educational review, 50: 36–42, June 1915.

Discusses the "constants" and "electives" of the curriculum. Says that the required studies for all pupils should be "English, some phases of the history of civilization, and practical problems in sociology, hygiene, civics, and economics."

953. **Mais, S. P. B.** Public schools in war time. Fortnightly review, n. s. 98: 142–52, July 1915.

Conditions in secondary schools of Great Britain. Writer says: "Our aim in education at present ought rather to lie in the direction of humane, generous, and liberal ideas than in the development of those faculties which make for success in military strategy and tactics."

TEACHERS: TRAINING AND PROFESSIONAL STATUS.

954. **Aragona, C. Tommaso.** La tecnica dell' insegnamento della pedagogia nelle scuole normali. Rivista pedagogica, 8: 398–431, May 1915.

On the organization of courses in pedagogy in normal schools.

Followed on p. 432–41 by an article by Luigi Benedetto, entitled: I ginnasi magistrali, on the new teachers' seminaries, with suggestions for improvement and development.

955. **Ballou, Frank Washington.** The appointment of teachers in cities; a descriptive, critical and constructive study. Cambridge, Harvard university press, 1915. 202 p. diagrs., 8°. (Harvard studies in education. vol. II)

956. **Fischer, R.** Beiträge zu einer statistik der deutschen lehrerschaft. Ergebnisse der von der Statistischen zentralstelle des Deutschen lehrervereins am 1. April 1913 veranstalteten erhebung. Schulstatistische blätter. . . Beilage zur Pädagogischen zeitung, 13: 1–12, February 25, 1915; 17–28, April 29, 1915.

CONTENTS.—Vorbemerkungen.—I. Das lebensalter der lehrer, p. 2–6.—II. Das anstellungsalter der lehrer, p. 7–13.—III. Der geburtsort der lehrer, p. 17–21.—IV. Der anstellungsort der lehrer, p. 21–28.

Presents and interprets detailed statistics of German teachers.

957. **Horner, Harlan H.** Regents examinations in the secondary schools of the State of New York as a basis for the rating and promotion of teachers. Educational administration and supervision, 1: 375–83, June 1915.

958. **National society for the study of education.** Fourteenth yearbook. Part II. Methods for measuring teachers' efficiency. Chicago, University of Chicago press [1915] 85 p. 8°. (G. M. Whipple, secretary-treasurer, University of Illinois, Urbana, Ill.)

959. **Preston, Josephine Corliss.** Teachers' cottages in Washington. Olympia, F. M. Lamborn, public printer, 1915. 38p. illus. 8°. (Washington, Department of education. Bulletin no. 27, 1915.)

The introduction and extension of teachers' cottages in Washington State.

960. **Sackett, L. W.** Professional retardation. Factors inherent in the teaching profession which make for mental retardation. American school board journal, 50: 11–12, 79, June 1915.

961. **Terrell, John B.** The selection of our teaching force for next year. Virginia journal of education, 8: 529–33, June 1915.

Discusses, How to hold the good teacher, Early election of teachers, A word about certificates, and, Choosing the high school principal.

HIGHER EDUCATION.

962. **Association of American universities.** Journal of proceedings and addresses of the sixteenth annual conference, held at Princeton university, November 6–7, 1914. 76 p. 8°. (Herman V. Ames, secretary, Philadelphia, Pa.)

Contains: 1. G. E. Vincent: The granting of honorary degrees, p. 27–34; Discussion, p. 34–41. 2. G. P. Day: The function and organization of university presses, p. 41–49. 3. J. C. Merriam: State agencies of university publication, p. 50–59; Discussion, p. 59. 4. A. L. Lowell: Economy of time in education, p. 61–67; Discussion, p. 67–76.

963. **Federation of Illinois colleges.** Eleventh annual meeting . . . Galesburg, Ill., April 26–27, 1915. 19 p. 12°. (H. E. Griffith, secretary, Knox college, Galesburg, Ill.)

Contains: 1. H. O. Pritchard: The college—its ideals and their realization, p. 6–12. 2. J. R. Harker: Annual losses in student attendance through the college course, p. 12–15. 3. Trevor Arnett: College finance, p. 15–17.

964. At the helm of the small college. Unpopular review, 4: 160–71, July–September 1915.

Narrates the experience of the head of a struggling college in piloting his institution into financial and educational safety.

965. **Bess, Elmer Allen.** Individual training for college students. School and society, 1: 800–6, June 5, 1915.

966. **Bevier, Louis.** Elimination and retardation of students in some colleges. Educational review, 50: 52–60, June 1915.

Presents statistical tables of percentage averages, etc., from 14 colleges, and discusses them. Concludes that a high graduation percentage, in itself, is "no conclusive ground of commendation unless it is also certain that a vigorous course of serious study is exacted of every candidate for the degree, nor is a low graduation percentage, in itself, a matter of censure, unless it is due to the admission of ill-prepared students, not fit for serious academic work."

967. **Bumpus, Hermon C.** The obligations of the trustees, faculty and alumni to the college. School and society, 2: 73–81, July 17, 1915.

Inaugural address, Tufts college, June 12, 1915.

968. **Butler, Nicholas Murray.** Barnard college. 1889–1914. Columbia university quarterly, 17: 201–11, June 1915.

An address delivered at the convocation in commemoration of the twenty-fifth anniversary of the founding of Barnard college, April 29, 1915.

969. **Canby, Henry S.** The colleges and mediocrity. Harper's magazine, 131: 423–28, August 1915.

Says that the exceptional man must be provided with the training he needs.

970. **Dabney, Charles William.** A national university. School and society, 2: 37–49, July 10, 1915.

Statement of Charles William Dabney, president of the University of Cincinnati, Cincinnati, Ohio, before the Committee on education of the House of representatives, 63d Congress, February 27, 1914.

971. **Gundelfinger, George Frederick.** Ten years at Yale; a series of papers on certain defects in the university world of today. New York, The Shakespeare press, 1915. 216 p. 12°.

Written by a Yale graduate who held the position of instructor in the Sheffield scientific school. Deals with various phases of student life.

972. **Harkness, Mary L.** The calumniated collegian. Atlantic monthly, 115: 777–83, June 1915.

A plea for cultural studies. Writer says that real culture cannot be secured by a method which "openly proclaims all processes of pure intellect inferior in educational value and utility for life to mechanical processes and material results."

973. Jefferson's university; glimpses of the past and present of the University of Virginia. Editors: John S. Patton, Sallie J. Doswell, Lewis D. Crenshaw. [Charlottesville, Va., The Michie company, printers, 1915] 100 p. illus. 8°.

974. **MacDougal, Robert.** University research. School and society, 1: 793–800, June 5, 1915.

Read before the New York University conference.

975. **Merriam, John C.** State agencies of university publication. School and society, 1: 871–79, June 19, 1915.

Paper prepared on behalf of the University of California and presented at the meeting of the Association of American universities at Princeton university, November 6, 1914.

Gives a number of examples indicating the general types of organization and administration of university publication prevalent among the state universities.

976. **Mims, Edwin.** The aims of the American college. Vanderbilt university quarterly, 15: 75–84, April–June 1915.

"An address delivered at college hour at the University of Virginia, February 8, 1915. This was the first of a series of lectures delivered by Professor Mims at the University of Virginia as exchange lecturer."

977. **Neilson, William Allan.** Les universités et l'état. Revue internationale de l'enseignement, 35: 115–26, March–April 1915.

A critical survey, by a Harvard professor, of the relations of the universities of the United States and of Europe to the respective state governments, and a consideration of the effect of these relationships upon the academic body, taking the war manifestos of the German scientists, of English university men, and of the French universities as evidence of such effects.

978. **North Carolina. University.** The function of the state university; being the proceedings of the inauguration of Edward Kidder Graham as president of the University of North Carolina. Chapel Hill, N. C., April, 1915. 100 p. 8°.

Contains: 1. A. L. Lowell: Culture, p. 24–34. 2. F. J. Goodnow: Research, p. 35–42. 3. E. A. Alderman: Service, p. 42–52. 4. E. K. Graham: Inaugural address, p. 55–74.

979. **Plunkett, Horace.** McCarthy of Wisconsin. Nineteenth century, 77: 1335–47, June 1915.

A sketch of the career of Dr. Charles McCarthy, librarian of the Legislative reference library of Wisconsin. Contains an appreciation of the work of the University of Wisconsin.

980. **Quinn, Arthur H.** The unitary conception of education. Educational review, 50: 13–23, June 1915.

Describes the "unit system" as a method of "computing and recording grades which results in a student graduating from college upon the completion of a certain number of units of work without further ratification by faculty action." It is a consequence of the elective system of choosing studies. Says the unit system should be retained, for there is no effective substitute for it.

981. **Rapeer, Louis W.** College pedagogy. School and society, 1: 777–80, May 29, 1915.

Gives the qualities of a good college instructor, a summary of points made by twenty college seniors and juniors who have had about forty instructors each.

982. Representative Phi beta kappa orations; edited for the United chapters of Phi beta kappa by Clark S. Northup, William C. Lane, John C. Schwab. Boston and New York, Houghton Mifflin company, 1915. 500 p. front. 8°.

A selection from the annual addresses made before chapters of the society, covering a wide range of subjects.

983. **Rice, Richard,** *ed.* College and the future; essays for the undergraduate on problems of character and intellect. New York, Chicago [etc.] C. Scribner's sons [1915] 374 p. 12°.
Bibliography: p. 371-74.

984. **Showerman, Grant.** The liberal arts and scientific management. Popular science monthly, 86: 539–49, June 1915.
Writer says that the purposes, methods, and results of liberal education have never been susceptible of "scientific management." The professor of liberal arts can not be subjected to a scientific or practical demonstration of his efficiency.

985. **Ssymank, Paul.** Die moderne deutsche studentenschaft, ihre gruppierung und ihre ziele (1914). Akademische rundschau, 3: 73–110, October 1914–January 1915.
A comprehensive account of a great multiplicity of German university-student organizations, including numerous bibliographical footnotes.

986. **Smith, Payson.** Certain influences of the New England entrance certificate board. American school, 1: 164–65, June 1915.
Abstract from the Maine school report for 1914.
Gives reasons for the dissatisfaction which has arisen in relation to the New England college entrance certificate board.

987. **Stephenson, Edward Beattie.** The relation of fraternities to the university. Quarterly journal of the University of North Dakota, 5: 318–28, July 1915.
Discusses the essential conditions in a successful fraternity and the official relations of the university and the fraternities.

988. **Taylor, James Monroe** *and* **Haight, Elizabeth Hazelton.** Vassar. New York, Oxford university press, American branch, 1915. 232 p. illus. 12°. (American college and university series)

989. **True, A. C.** The relation of the college curriculum to human life and work. School and society, 1: 865–69, June 19, 1915.
Address delivered at the Southern conference for education and industry at Chattanooga, Tenn., April 27, 1915.
The writer pleads "for a broader consideration of the industrial element of education by our school and college officers and teachers. . . The general college curriculum is to be perfected not so much by the addition of subjects to give the students a broader range of choice as by the reorganization and redirecting of a limited number of fundamental subjects to make him a well-educated man prepared to live in the day of his own generation."

SCHOOL ADMINISTRATION.

990. **Arnold, Felix.** The unit of supervision, cost and efficiency. School and society, 2: 1–11, July 3, 1915.
Takes up the question of the number of classes or teachers a supervisor of a school should direct, and what work should legitimately be demanded of him.

991. **Baker, George Marshall,** *comp.* "Six-six." Kentucky high school quarterly, 1: 5–32, July 1915.
A collection of material designed to be of service to those who have the reorganization by "six six" under consideration.

992. **Brown, G. E.** Should the state publish its own text-books. Journal of education, 81: 566–67, May 27, 1915.
Read before the Open Forum in Wenatchee, Washington, March 13, 1915.
Claims that the state cannot furnish as good books, and furnish them at a lower price than the open market, and should therefore not attempt to do it.

993. **Flynn, W. J.** Business administration in smaller districts. American school board journal, 50: 21–23, 66, June 1915.

994. **Hackney, Ed. T.** One-board administration of Kansas state education institutions. American school, 1: 137, May 1915.
"The president of the State board of education in Kansas tells, as he sees it, how a single board for a state's higher institutions does its work."

995. **Lizer, G. D.** School accounting. American school board journal, 50: 17–18, June 1915; 51: 18, 84, July 1915.

"The result of a statewide study of school accounting, conducted by superintendents and members of school boards in Minnesota."

The second half of the article takes up minor records, particularly those used in purchasing and distributing school supplies.

996. **Maxwell, William H.** How to determine the efficiency of a school or a school system. Educational review, 50: 1–12, June 1915.

The final test of efficiency is the kind of men and women the school's pupils turn out to be. Says that "the statistical professors of education would do well to try their theories on the work of their college and university colleagues before applying them to the common schools."

997. **Morton, Max D.** May personality be developed by supervision? Colorado school journal, 30: 11–14, June 1915.

Tells in what directions a teacher can aid in the development of his own personality, and how superintendents can aid in the development of personality of teachers under them.

998. **O'Shea, M. V.** The cost of textbooks. Mother's magazine, 10: 10–11, July 1915.

"Textbooks should be uniform throughout the state and free to pupils. Choice of textbooks should be taken out of the hands of non-expert school boards."

999. **Rice, Melvin.** A practical method for purchasing school supplies. American school board journal, 51: 11–12, 71–72, July 1915.

SCHOOL MANAGEMENT.

1000. **Bidwell, Alice.** The young teacher and course failures. Illinois association of teachers of English—Bulletin, 7: 10–21, April 15, 1915.

The subject is discussed under the following headings: Relation of failures to years of experience; Ways of accounting for this; Legitimate number of failures; Legitimate causes of failures; Treatment of failures; Avoiding failures; and Inevitable disappointments.

1001. **Butterworth, Julian E.** Some unsolved problems in supervised study. Wyoming school journal, 11: 272–80, May–June 1915.

Discusses the following phases of the subject: What should be the aim in supervising study? What is the most economical period for recitation and study? What should be the attitude toward home work? Is supervised study more costly? What should be the nature and the distribution of the exercises within the period? and, What are the essentials in the technique of study?

1002. **Hosic, J. F.** Waste in education. Practical school journal, 5: 2–4, May 1915.

From an address delivered before the State teachers' association of Illinois.

Suggests a plan of conservation by scientific management.

1003. **Irwin, Elisabeth Antoinette.** Truancy; a study of the mental, physical and social factors of the problem of non-attendance at school. [New York] Public education association of the city of New York, 1915. 66 p. diagrs. 8°.

"Associated with Miss Irwin in this study [was] Miss Jessie L. Louderback, who . . . prepared the entire third section".

1004. **Kellicott, William E.** The examination of certain objections to the Missouri system of grading. School and society, 2: 81–88, July 17, 1915.

The author thinks that the Missouri system of grading does not offer a complete and universal panacea for all the irregularities and injustices connected with the determination and assignment of grades, but that it is better than any other plan yet proposed and should be accepted by any one unable to suggest a better plan.

1005. **Nüchter, Friedrich.** Klasseneinteilung und vorrückungssysteme in Amerika. Deutsche schule, 19: 91–98, February 1915.

A sketch of American systems of classification and promotion of pupils—Cambridge, Elizabeth, Pueblo, St. Louis plans. The article closes with a critical summary and points to Dewey's social pedagogy.

1006. **Pittenger, Benjamin F.** Studies based upon school and college marks. American schoolmaster, 8: 207–19, May 1915.

Bibliography: p. 2, 8–19.

"In this review the writer has attempted to summarize some of the more important educational studies based upon school marks, and to extract their more significant implications."

1007. **Roecker, W. F.** An objective study of the rating of traits in school achievement. School review, 23: 406–10, June 1915.
Discusses the report cards of the Wisconsin high school of the University of Wisconsin.

1008. **Wright, Frank Watson.** Bridging the gap; the transfer class. Cambridge, Mass., Harvard university, 1915. 35 p. 8°. (The Harvard-Newton bulletins, no. III)

SCHOOL ARCHITECTURE.

1009. **Baldwin, Edward C.** Terminology of school building construction and repairs. American school board journal, 51: 13–14, 82–83, July 1915.
"This paper, which is a statement of the first comprehensive, and, we think, workable plan for classifying school buildings was read before the convention of the National association of school accounting officers, at St. Louis, May 19."—Editor's note.

SCHOOL HYGIENE AND SANITATION.

1010. **Dreyfuss, J.** Beitrag zur frage des ernährungszustandes und der konstitution der schulkinder. Zeitschrift für schulgesundheitspflege, 28: Beilage. Der schularzt, 13: 193–205, April 1915.
Discusses: 1. Some attempts to introduce definite standards. 2. Shall we drop the rubric "general condition"? 3. An attempt to determine the "components" of physical constitution.

1011. **Drummond, William Blackley.** An introduction to school hygiene. London, E. Arnold [1915] 237 p. illus. 12°.

1012. **Luckiesh, M.** Safeguarding the eyesight of school children. American school board journal, 50: 13–15, 67–72, June 1915.
Read at the meeting of the Pittsburgh section of the Illuminating engineering society, January 29, 1915, with the object of presenting to school authorities the importance of proper lighting.

1013. **Weinberg, Margareta.** Italienische freiluftschulen. Zeitschrift für schulgesundheitspflege, 28: 109–11, March 1915.

PHYSICAL TRAINING.

1014. **Foster, William T.** Athletics by proxy. School and society, 1: 733–38, May 22, 1915.
Advocates athletics for all the students instead of the few who make the varsity team.

PLAY AND PLAYGROUNDS.

1015. **A brief history of the playground movement in America. Playground, 9: 2–11, 39–45, April, May 1915.**
To be continued.
Many of the facts herein given were collected for the Association by Dr. Henry S. Curtis.

1016. **Curtis, Henry S.** The practical conduct of play. New York, The Macmillan company, 1915. 330 p. illus. 12°.

1017. **Knight, Howard R.** Play and recreation in a town of 6000. (A recreation survey of Ipswich, Massachusetts) New York city, Department of recreation, Russell Sage foundation [1915] 98 p. illus., diagrs. 8°. (Russell Sage foundation, New York. Pamphlet. Rec. 144)

SOCIAL ASPECTS OF EDUCATION.

1018. **Bourne, Randolph S.** Some social implications of the Gary school. American teacher, 4: 82–85, June 1915.
"The Gary school cultivates the social background. Not content with organizing the school as a veritable democratic, self-supporting, self-enhancing community, it teaches history and geography, languages and literature, from the standpoint of the social problems of the day. The town and state, with their institutions, are actually used as the text-books from which the interests in the wider world, past and present, are cultivated."

1019. **Brubacher, A. R.** Education and social service. School and society, 1: 721–26, May 22, 1915.
Inaugural address of the president of the New York state college for teachers, Albany, N. Y.

1020. **Hartnacke, ———.** Besteht ein verhältnis zwischen der sozialen lage der familie und der schulleistung der kinder? Ergebnisse einer statistik über die schulerfolge von kindern der entgeltlichen und unentgeltlichen volksschulen in Bremen. Pädagogische zeitung, 44: 225–27, May 6, 1915.

Finds that economic and social status of the parents affects success of their children in any type of school. These conclusions are criticised by Otto Schmidt, p. 227–28 of same periodical.

1021. **Joël, Ernst.** Der deutsche student in der volksbildung. Akademische rundschau, 3: 111–15, October 1914–January 1915.

An account of the social work of German university students, such as lectures for working classes, settlement work, rural theater performances, fairy-story hours, entertainment and instruction for young people.

1022. **King, Irving.** Education for social efficiency; a study in the social relations of education. Enl. ed. New York, Chicago, D. Appleton and company [1915] 371 p. 12°.

1023. **Stearnes, R. C.** Social patrons and school systems. West Virginia school journal and educator, 44: 122–26, July 1915.

Address before the West Virginia education association, June 18, 1915.

"The design of this address is two-fold: first, to arouse a new sense of the importance of paternal activity in training children; and second, to advocate the strongest dual alliance the world can ever know to accomplish desired results."

CHILD WELFARE.

1024. **Büttner, Georg.** Vom wandertrieb bei kindern. Zeitschrift für kinderforschung, 20: 349–56, April–May 1915.

Considers the cause of vagabondage and truancy in children; also reviews: Stier, Ewald. Wandertrieb und pathologisches fortlaufen bei kindern. Jena, Gustav Fischer, 1913. 135 p.

1025. **Mendelsohn, Sigmund.** Summer idleness and juvenile delinquency. Educational review, 50: 24–35, June 1915.

Gives statistics of juvenile delinquency. Advocates doing away with the long vacation. Cites work of the all-year schools at Gary, Ind.

1026. **Wald, Lillian D.** The house on Henry Street: children who work. Atlantic monthly, 115: 806–17, June 1915.

Part 4 of a series of articles on settlement work in New York city. Interesting graphic statistics presented regarding economic conditions. Welfare work among children; vocational guidance, etc. To be continued.

1027. **Winter, Otto.** Jugendpflege im kriege und einige jugendheime. Arbeitsschule, 29: 65–70, March 1915.

A description of "nests" of the "Wandervogel" organization of boys' clubs.

MORAL EDUCATION.

1028. **Bagley, W. C.** The preparation of teachers with reference to moral ideals. Child-welfare magazine, 9: 358–64, July 1915.

1029. **Cabot, Ella Lyman.** The conquest of children's faults. Religious education, 10: 239–52, June 1915.

The writer thinks we need common standards of discipline, but also an understanding of different types of children and of the same children at different ages. Sketches in outline a few types of children.

1030. **Heywang, E.** Hass im unterricht? Pädagogische zeitung, 44: 177–79, April 8, 1915.

Declares that the school should not teach "Hate for England," as some German educators have demanded.

RELIGIOUS EDUCATION.

1031. **Baketel, O. S.** The first educational institutions of the Methodist Episcopal church. Methodist review, 97: 404–8, May–June, 1915.

Educational institutions in the United States founded by Methodist-Episcopal church.

1032. **Gardner, Charles S.** *and* **Berkowitz, Henry.** The right of the child to education. Religious education, 10: 225–33, 233–39, June 1915.

Both articles deal principally with the place of religion in education.

MANUAL AND VOCATIONAL TRAINING.

1033. **National association of corporation schools.** Proceedings, Worcester, Mass., June 8–11, 1915. Industrial education (Convention daily) 1: nos. 1–4, June 8–11, 1915.

Contains: No. 2, C. P. Steinmetz: Annual address.—No. 3, H. C. Metcalf: Vocational guidance in the colleges.—F. C. Henderschott: Education a dominant factor in success.—No. 4, C. R. Dooley: The employer-teacher.—Lee Galloway: A new departure in the field of vocational guidance.—The course of vocational guidance at New York university.—E. G. Allen: Standardizing educational requirements for workers in various industries. What the Cass technical high school of Detroit is doing to determine the qualifications demanded by different trades.—L. N. Dennis-ton: College men demanding practical instruction.—U. W. Cutler: The field and the force of vocational guidance.

1034. **Clough, Arthur F.** The necessity of industrial training. Worcester magazine, 18: 110–13, May 1915.

What the National association of corporation schools is, and what it stands for—getting the right men for the right places and making them more efficient for themselves as well as their employers; the success of the movement.

1035. A community of home builders. National association of corporation schools, Bulletin, 2: 17–21, June 1915.

Gives a synopsis of an account of the prevocational schools of New Britain, Conn., which appeared in the Herald of that city.

The pupils of the seventh and eighth grades are gathered at a single center consisting of two buildings operating as a single school under the same principal. Four courses are offered to these pupils, the general course, practical arts course for girls, practical arts course for boys, and business and English courses.

1036. **Cory, C. L.** The education of the future engineer. Bulletin of the Society for the promotion of engineering education, 5: 22–32, June 1915.

1037. A desirable professional status for the manual training teacher. Extracts from the Report of a committee of the Eastern arts association. Industrial arts magazine, 4: 24–26, July 1915.

A frank statement of the shortcomings of manual-training instructors and a comprehensive program for improvement.

1038. **Everley, Harold R.** Vocational education in Brazil. Manual training and vocational education, 16: 604–17, June 1915.

1039. **Haney, James Parton.** Art and industrial training in Germany. Presented to the Board of education, May 12th, 1915. [New York, Press of C. S. Nathan, inc., 1915] 86 p. illus. 8°.

An appendix of the sixteenth annual report of the city superintendent of schools of New York city for 1913–1914.

1040. **Harper, Jane R.** A survey of opportunities for vocational education in and near Philadelphia. Philadelphia, Pa., Public education association, 1915. 138 p. 8°. (Public education association. Study no. 43)

1041. **Johnson, James F.** Conservation in education. Industrial-arts magazine, 4: 47–51, August 1915.

The director of the Bridgeport, Conn., Trade education shop shows how the school is organized upon a commercial basis and run in a business-like way. He tells of the after effects of the training upon the graduates, saying that the graduates have proven desirable workmen and that the demand for them is greater than the supply.

1042. **Kühnel, Johannes.** Der handfertigkeitsunterricht vom standpunkt des pädagogen. Deutsche schule, 19: 15–22, 79–91, January, February 1915.

1043. **New York state factory investigating commission.** The possibility of vocational training in paper box making, department store work, and candy making, and the wage value of vocational training. Albany, J. B. Lyon company, printers, 1915. p. 1237–1460. 8°. (Reprint of Appendix VI of the fourth Report of the New York state factory investigating commission)

CONTENTS.—Introduction.—*Part one.* 1. An investigation of the paper box industry to determine the possibility of vocational training, by Robert J. Leonard.—2. An investigation of the candy industry to determine the possibility of vocational training, by Anna C. Phillips.—3. An investigation of department store work to determine the possibility of vocational training, by Mrs. Iris Prouty O'Leary.—*Part two.* Report on the wage value of vocational training, by Wesley A. O'Leary.

1044. **Roman, Frederick William.** The industrial and commercial schools of the United States and Germany; a comparative study. New York and London, G. P. Putnam's sons, 1915. 382 p. 12°.

1045. **Schneider, Herman.** Education for industrial workers; a constructive study applied to New York city. Yonkers-on-Hudson, N. Y. World book company, 1915. x, 98 p. 8°. (School efficiency series, ed. by P. H. Hanus)

VOCATIONAL GUIDANCE.

1046. **Bloomfield, Meyer.** Youth, school and vocation. Boston, New York [etc.] Houghton Mifflin company [1915] xi, 273 p. 12°.

CONTENTS.—Introduction, by Henry Suzzallo.—1. The choice of a life-work and its difficulties.—2. The wasteful start and inefficiency.—3. Educational and vocational guidance.—4. The organization of vocational guidance.—5. Vocational guidance in Germany.—6. Vocational guidance in England and Scotland.—7. Vocational guidance and health guidance.—8. The school and the start in life.—9. The social gain through vocational guidance.—Suggestive material.—Bibliography.

AGRICULTURAL EDUCATION; HOME ECONOMICS.

1047. **Monahan, A. C.** Extension teaching in agriculture and household arts in Ireland. Training school quarterly, 2: 1–6, April, May, June 1915.

1048. **Prosser, C. A.** The selection and training of teachers of the household arts. Industrial-arts magazine, 4: 1–4, July 1915.

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1049. **National commercial teachers' federation.** Proceedings of the National commercial teachers' federation and its constituent associations . . . at the eighteenth annual convention, held at Chicago, Ill., December 28–31, 1914. Federation herald, 1: 49–96, June 1915. (Continued from March issue. See item 850.)

Contains: 1. F. E. Lakey: Psychology in the school room, p. 57–60. 2. D. R. Forgan: What business men want young men to know, p. 60–62. 3. S. B. Price: The constitution of a live business school, p. 63–65. 4. D. W. Springer: High-school bookkeeping—its deficiencies, p. 67–68. 5. F. H. Elwell: The teaching of accounting, p. 68–69. 6. Minnie F. Dean: Training the shorthand teacher, p. 73–75. 7. Lewis Atherton: What is demanded of the boy entering the business world, p. 81–83; Discussion, p. 83–88. 8. J. P. Joplin: The business college graduate in the business world, p. 91–94.

1050. **Curtis, John W.** The necessity for high school commercial courses. Manual training and vocational education, 16: 593–98, June 1915.

1051. Report of a Massachusetts committee on problems of commercial education in larger high schools—a sub-committee of the Massachusetts committee on business education. Journal of education, 82: 9–11, July 8, 1915.

"This committee, upon considering the problems of commercial education in the larger high schools, decided to devote this report mainly to a discussion of the value of training for competitive activities as compared with training for clerical activities."

PROFESSIONAL EDUCATION.

1052. **Association of American law schools.** Proceedings of the fourteenth annual meeting . . . held at Chicago, Ill., December 28–30, 1914. 139 p. 8°. (Walter W. Cook, secretary-treasurer, Chicago, Ill.)

Contains: 1. J. H. Beale: The necessity for a study of legal system, p. 31–45. 2. W. H. Page: Professor Ehrlich's Czernowitz seminar of living law, p. 46–75. 3. W. N. Hohfeld: A vital school of jurisprudence and law: have American universities awakened to the enlarged opportunities and responsibilities of the present day? p. 76–139.

1053. **Association of American medical colleges.** Proceedings of the twenty-fourth annual meeting, held at Chicago, February 25, 1914. 120 p. 8°. (F. C. Zapffe, secretary, Chicago, Ill.)

Contains: 1. E. P. Lyon: Principles of curriculum making, p. 5–19. 2. K. C. Babcock: A comprehensive interpretation of the college credit requirement. (A) One year. (B) Two years, p. 20–28. 3. I. L. Otis: Who shall evaluate college or entrance credits? p. 29–30. 4. J. L. Heffron: What privileges may be given students who matriculated on a secondary educational standard and must repeat, by reason of failure to pass the year? p. 31–33; Discussion, p. 33–40. 5. Le Fevre: Is it desirable at this time to fix a date for two years' preliminary work? p. 41–43; Discussion, p. 43–46. 6. J. M. Dodson: Should a hospital internship be required as a prerequisite to graduation? If so when should this requirement be obligatory? p. 47–53; Discussion, p. 53–55. 7. C. H. Neilson: The teaching of medicine, p. 61–68. 8. H. U. Williams: A weak point in medical education revealed by state licensing examinations, p. 69–76.

1054. **Bruder, Otto E.** The education of the American boy. Educational bi-monthly, 9: 427–34, June 1915.

Discusses principally the education of a boy whose ambition leads him to become a pharmacist. The majority of pharmacists seem to think that the high-school boy graduate of to-day is not fit to enter the ranks of pharmacy. The writer does not believe in a prerequisite law, which implies high-school graduation, but advocates either lengthening the grammar school to the tenth grade, or changing the curriculum of the first two years of high school, making the studies more practical and of some value to the boy who intends to fit himself for such a profession as pharmacy. This newer curriculum should include a few necessary elective studies.

1055. **Rodman, William L.** Work of the American medical association. Journal of the American medical association, 64: 2107–15, June 26, 1915.

Gives an interesting résumé of medical education in the United States. Work of the Council on medical education, etc.

EDUCATION OF WOMEN.

1056. **Southern association of college women.** Proceedings of the twelfth annual meeting, Atlanta, Ga., April 22–24, 1915. 124 p. 8°. (Mary L. Harkness, secretary, New Orleans, La.)

Contains: 1. E. A. Colton: The Southern association of college women, p. 11–15. 2. Clyde Furst: Ideals of women's colleges, p. 15–25. 3. The provision made by Southern standard colleges for the education of women—I. By our standard separate colleges for women [by] W. A. Webb, p. 25–31; II. By our state universities admitting women [by] Emily H. Dutton, p. 31–40; III. By our standard independent co-educational and co-ordinate colleges [by] May L. Keller, p. 40–44. 4. Emily H. Dutton: Report of committee on standards of colleges, p. 64–71.

1057. After Vassar, what? The record of a college class. By a recent Vassar graduate. Outlook, 110: 518–23, June 30, 1915.

Describes the various kinds of work undertaken by a class of women who have been out of college one year

1058. **Hutchinson, Emilie J.** The vocational interests of college women. Columbia university quarterly, 17: 227–32, June 1915.

1059. **Mathews, Lois Kimball.** The dean of women. Boston, New York [etc.] Houghton Mifflin company [1915] vii, 275 p. 12°.

Author is dean of women and associate professor of history in the University of Wisconsin. Introduction by President C. R. Van Hise, who says that the description and discussion of the subject in this book will be of great assistance to deans of women in general.

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1061. **American instructors of the deaf.** Proceedings of the twentieth meeting of the convention . . . held at Staunton, Va., June 25 to July 1, 1914. Washington, Government printing office, 1915. 374 p. 8°. (F. M. Driggs, secretary, Ogden, Utah)

Contains: 1. P. P. Claxton: [Education of the deaf] p. 18–22. 2. J. E. Gallaher: Moral and social development of pupils, p. 46–48. 3. J. E. Travis: The language and problems of industrial work, p. 71–72. 4. B. R. Allabbaugh: Character building of our pupils from the supervisor's point of view, p. 88–93. 5. Frances Wettstein: The education of the deaf in day schools,

p. 105–10. 6. F. M. Driggs: Speech problems in combined-system schools, p. 111–20; Discussion, p. 121–25. 7. Anne E. George: The Montessori method, p. 149–56. 8. Sarah H. Porter: Working psychology for normal classes, p. 156–60. 9. Lyman Steed: Judging and recording the work of normal students, p. 160–63. 10. E. A. Gruver: Correlation of liberal and vocational education for the deaf, p. 163–67. 11. Sadie M. E. McArdle: Kindergarten methods, p. 180–83. 12. R. O. Johnson: Measurement of efficiency of schools for the deaf, p. 184–91. 13. Industrial statistics, p. 211–365.

1062. **Bruhn, Martha E.** The Müller-Walle method of lip-reading. Volta review, 17: 293–95, August 1915.

Describes results obtained from teaching lip-reading to congenitally deaf children and those who have become deaf in adult life.

1063. **Morgenstern, Louise I.** Teaching lip-reading to the adult hard of hearing in public evening school classes. Volta review, 17: 255–57, 297–99, July, August, 1915.

1064. **Nitchie, Edward B.** What a deaf adult should do to acquire the art of lip-reading. Volta review, 17: 251–54, July 1915.

1065. **Roberts, Emma.** Training the deaf child. Volta review, 17: 305–10, August 1915.

Deals principally with the child while he is very small, until about two years of age.

1066. **Stevens, J. E.** Schools for the deaf in Europe. Volta review, 17: 221–25, June 1915.

Says that in European countries visited there is practically unanimity of opinion among experts as to the superiority of the oral system of instruction.

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1067. **Allison, Samuel B.** Classification of exceptional children in the elementary school. Educational bi-monthly, 9: 388–95, June 1915.

Discusses the subject under the following headings: (1) Classification of exceptional children in the elementary school, (2) Practical standard of measuring mental ability, (3) Defective group, (4) Borderline cases, (5) Backward children, (6) Low mental cases, (7) Variants, (8) Retardates, (9) Pathological retardates, (10) Structure of special classes, (11) Separation of groups.

1068. **Cornman, Oliver P.** Education of exceptional children. Special classes in public schools. School progress, 5: 6–9, June 1915.

Discusses disciplinary classes, parental schools, restoration classes, and fresh air classes.

1069. **Girstenberg, J.** Absonderliche kinder. Zeitschrift für kinderforschung, 20: 263–70, February-March 1915.

The author presents a classification of exceptional children according to their "psychic idiosyncrasies," and makes suggestions for their curative treatment.

1070. **Groszmann, Maximilian P. E.** Care of exceptionally bright children. Educational foundations, 26: 587–92, June 1915.

1071. **Nöll, Heinrich.** Formale und materielle intelligenzdefekte als hemmungen im ersten leseunterricht der schwachbegabten und eine diesen defekten angepasste leselehrmethode. Zeitschrift für kinderforschung, 20: 153–71, 217–41, 304–22, January, February-March, April-May, 1915.

To be continued.

A psychological and pedagogical study of teaching reading to backward children.

1072. **Weiss, Rudolf.** Die lehrplanfrage in der hilfsschule. Zeitschrift für kinderforschung, 20: 249–63, February–March 1915.

A discussion of the principles of the course of study in the auxiliary school, being a reply to a criticism of the author's book: "Lehrpläne für den unterricht in der hilfsschule."

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Describes the advantages of class instruction in extension work.

1074. **Osborn, Loran D.** University extension. Colorado school journal, 30: 4–8, May 1915.

Gives first the history of the movement, then its aim and scope, and lastly the phases of extension activity at the University of Colorado.

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1076. **Fay, Lucy E.** *and* **Eaton, Anne T.** Instruction in the use of books and libraries; a textbook for normal schools and colleges. Boston, Mass., The Boston book company, 1915. 449p. 8°.

1077. **Fletcher, Mabel.** The struggling high-school library. English journal, 4: 357–61, June 1915.
Discusses the problems that confront the librarian of a high-school library.

1078. **Herzberg, Max J.** Supplementary reading for high-school pupils. English journal, 4: 373–82, June 1915.
Contains a list of books for supplementary reading.

1079. **Johnston, William Dawson.** The library and history teaching, with special reference to the teaching of local history. School and society, 2: 14–18, July 3, 1915.

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1080. Civic education in elementary schools as illustrated in Indianapolis, by Arthur W. Dunn. Washington, 1915. 35p. (BuHetin, 1915, no. 17)

1081. History of public school education in Alabama; by Stephen B. Weeks. Washington, 1915. 209p. (Bulletin, 1915, no. 12)

1082. Legal education in Great Britain; by H. S. Richards. Washington, 1915. 20 p. (Bulletin, 1915, no. 18)

1083. Monthly record of current educational publications. Index, February, 1914–January, 1915. Washington, 1915. 34 p. (Bulletin, 1915, no. 15)

1084. The rural school system of Minnesota, a study in school efficiency; by H. W. Foght. Washington, 1915. 56 p. plates. (Bulletin, 1915, no. 20)

1085. State versus local control of elementary education (finance); by Theodore L. MacDowell. Washington, 1915. 83 p. (Bulletin, 1915, no. 22)

1086. The teaching of community civics; prepared by a special committee of the Commission on the reorganization of secondary education, National education association, consisting of J. L. Barnard, F. W. Carrier, A. W. Dunn, and C. D. Kingsley. Washington, 1915. 55 p. (Bulletin, 1915, no. 23)

1087. Report of the Commissioner of education for the year ended June 30, 1914. Vol. 1. Washington, Government printing office, 1915. 810 p. 8°.
CONTENTS.—Commissioner's introduction, p. xiii–xxxviii. 1. W. C. Ryan, jr.: General survey of education, 1914, p. 1–18. 2. G. D. Strayer: Recent progress in educational administration, p. 19–36. 3. J. H. Van Sickle: Progress of school systems in cities of more than 25,000 population, p. 37–60. 4. W. S. Deffenbaugh: Current progress in schools of cities of 25,000 population or less, p. 61–98. 5. J. L. McBrien: Rural education, p. 99–125. 6. T. H. Briggs: Secondary education, p. 127–57. 7. S. P. Capen: Higher education, p. 159–90. 8. N. P. Colwell: Progress of the year in medical education, p. 191–218. 9. W. A. Dewey: Medical education in the homeopathic school of medicine, p. 219–23. 10. H. M. Bates: Recent progress in legal education, p. 225–38. 11. W. T. Bawden: Progress in vocational education, p. 239–89. 12. A. C. Monahan and C. H. Lane: Agricultural education, p. 291–318. 13. B. R. Andrews: Education for the home, p. 319–44. 14. Almira M. Winchester: Kindergarten progress, 1913–14, p. 345–54. 15. Anne E. George: The Montessori movement in America, p. 355–62. 16. Mrs. Frederic Schoff: Education for child nurture and home making outside of schools, p. 363–74. 17. Florence N. Levy: Professional art schools, p. 375–99. 18. A. W. Dunn: The trend of civic education, p. 401–16. 19. T. J. Jones: Negro education, p. 417–24. 20. H. H. Wheaton: Recent progress in the education of immigrants, p. 425–54. 21. C. A. Perry: Recent progress in wider use of school plant, p. 455–71. 22. G. B. Utley: Library activities during 1913–14, p. 473–95. 23. P. M. Rea: Educational work of American museums, p. 497–511. 24. E. F. Buchner: School surveys, p. 513–62. 25. James Mahoney: American citizenship in the educational surveys, p. 563–96. 26. J. O. Knott: Denominational

schools, p. 597–613. 27. H. R. Evans: Educational organizations, p. 615–32. 28. Education in territories and dependencies—schools conducted by United States government, p. 633–54. 29. Anna T. Smith: Education in Canada, p. 655–64. 30. Education in the Central and South American states, p. 665–73. 31. Educational movements in Great Britain and Ireland, p. 675–700. 32. Education in the smaller kingdoms of northern Europe, p. 701–16. 33. Educational conditions in France and Switzerland, p. 717–36. 34. Education in central Europe, p. 737–52, 35. Education in the kingdoms of Southern Europe, p. 753–60. 36. Education in Russia. p. 761–66. 37. Modern education in Asia and Africa, p. 767–78. 38. Education in Australasia, p. 779–88. 39. Events of international interest, p. 789–95.

Volume 2 contains statistical material.

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UNITED STATES BUREAU OF EDUCATION
BULLETIN, 1915, NO. 35 - - - - - - - - WHOLE NUMBER 662

MATHEMATICS IN THE LOWER AND MIDDLE COMMERCIAL AND INDUSTRIAL SCHOOLS

OF VARIOUS COUNTRIES REPRESENTED IN THE INTERNATIONAL COMMISSION ON THE TEACHING OF MATHEMATICS

By E. H. TAYLOR
INSTRUCTOR IN MATHEMATICS, EASTERN ILLINOIS STATE NORMAL SCHOOL

With the Editorial Cooperation of

DAVID EUGENE SMITH, WILLIAM F. OSGOOD
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INTRODUCTION.

The object of this report is to give an account, in such a form as to allow comparisons, of the instruction in mathematics in the Lower and Middle Commercial and Industrial Schools in the countries reporting to the International Commission on the Teaching of Mathematics.

The data of this report have been taken entirely from the reports of the international commission, except in the cases of Great Britain, Germany and the United States. In these cases certain other sources of information, such as official school reports, have been consulted.

The countries included in this report are Austria, Belgium, Denmark, Finland, France, Germany, Great Britain, Holland, Hungary, Italy, Japan, Russia, Spain, Sweden, Switzerland, and the United States.

The reports of the international commission give a very brief treatment of the commercial and industrial schools in certain countries, and consequently the discussion of the schools of those countries is brief in the present report.

The first part of this report consists of an account of the schools considered, arranged according to countries. This account contains, so far as the facts are available, a brief statement of the organization of each type of school, the entrance requirements, length of the course, by whom supported, aim of the school and of the mathematical instruction, courses of study in mathematics, methods of instruction in mathematics, preparation of the teachers, examinations, and present tendencies.

The second part gives in tabular form, so far as the facts are available, for each type of school in each country the following facts: The number of years of previous school attendance required for entrance; the approximate age at entrance; the number of years in the course; the number of hours a week spent in the school; the number of hours a week given to the study of mathematics; the course of study in mathematics.

There is given, finally (pp. 94–96), a list of the kinds of schools here considered and the terms used as equivalents in this report.

An account of the teaching of mathematics in the commercial and industrial schools of the United States is given in the Reports of Committees I, II, III, IV, and V of the American Subcommission of the International Commission. As these reports are readily available,[1] it has been thought necessary in the present report to give only a brief summary of this work and to refer to the original committee reports for further details.

[1] In the bulletin series of the U. S. Bureau of Education. See Nos. 6–9, 12, 13, 16, of 1911, and 2, 4, 13, 14, 29, of 1912.

MATHEMATICS IN THE LOWER AND MIDDLE COMMERCIAL AND INDUSTRIAL SCHOOLS

OF VARIOUS COUNTRIES REPRESENTED IN THE INTERNATIONAL COMMISSION ON THE TEACHING OF MATHEMATICS.

AUSTRIA.

COMMERCIAL SCHOOLS.[1]

Organization.—The higher commercial schools, which are the ones discussed in the report, are State schools, and all, apparently, have the same course of study. When the report was written (1910) there were 25 of these schools. The course of study is four years. The age of entrance is 14 years. There is no unity of requirement as to preparation for entrance into the first year's work. Perhaps one may say that the average requirement is the completion of three years in a Gymnasium or a Realschule. This lack of unity in the entrance requirements is said to cause an unsatisfactory gradation of students.

Aim of the instruction.—Mathematics is to be taught both for its disciplinary and for its practical value. Special attention is given to applications to commercial problems.

COURSE OF STUDY IN MATHEMATICS.[2]

FIRST YEAR.[3]

Commercial arithmetic. (Three hours a week.) This course includes a review of the fundamental operations, abridged multiplication and division, accounts, the chain rule, and percentage.

Algebra. (Allgemeine und politsche arithmetik.) (Two hours a week.) The fundamental operations, measures, multiples, fractions, equations of the first degree in one or more unknowns, and ratio and proportion are the principal topics studied in this course.

Geometry. (Two hours a week.) Plane and solid geometry.

SECOND YEAR. (THE STUDENT'S TENTH SCHOOL YEAR.)

Commercial arithmetic. (Three hours a week.) This includes interest, discount, equation of payments, accounts current with interest, stocks, exchange, and problems in buying and selling.

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[1] Berichte über den math. Unterricht in Österreich, Heft 2: Der math. und phys. Unterricht an den höheren Handelsschulen, by M. Dolinski, pp. 29–41. Referred to hereafter as Heft 2.

[2] Heft 2, p. 36.

[3] In most cases this is probably the student's ninth school year. In some cases it is probably the eighth.

Algebra. (Two hours a week.) Powers, roots, equations of the first degree in one unknown, and logarithms.

THIRD YEAR. (THE STUDENT'S ELEVENTH SCHOOL YEAR.)

Commercial arithmetic. (Three hours a week.) Various problems in exchange, stocks, accounts current with interest, and calculation of prices of goods are taken up.

Algebra. (Two hours a week.) Exponential equations, progressions, compound interest and annuities, and sinking funds.

FOURTH YEAR. (THE STUDENT'S TWELFTH SCHOOL YEAR.)

Commercial arithmetic. (Two hours a week.) Calculation of prices of foreign goods, stocks, bonds, and exchange.

Algebra. (Two hours a week.) Probability, annuities, and insurance.

Methods of instruction[1].—The subject matter of the courses in mathematics, as the above program shows, is mainly vocational. The report gives no examples of the problems solved, and nothing is said of their origin. They are probably taken in the main from the texts, a list of which is given. Considerable freedom is given the teachers in administering the programs, but it is required that the work outlined be done. The method of teaching is heuristic.

Preparation of teachers.[2]—The problem of finding properly prepared teachers has not been solved. Some of those teaching mathematics are qualified to teach in the upper classes and some only in the lower classes of the secondary schools. There is, however, a law, passed 1907, that requires that all candidates to teach commercial arithmetic shall have completed the equivalent of the four lower classes of a middle school, and then the four years' course in a commercial school; this to be followed by two years of satisfactory commercial experience in a large commercial center, and finally the two years of work prescribed by the minister of education in some higher institution.

Examinations.[3]—Oral examinations are given from two to four times a semester. There is no final examination. Students who finish the course receive a leaving certificate.

Modern tendencies.[4]—The modern reform movement in the teaching of mathematics has affected the teaching in the commercial schools. It is recommended that the notion of function be introduced as early as possible, and that it be made the central point in the teaching of geometry. Graphical methods should be used. More hours should be given to algebra. The instruction in algebra and geometry should be connected more closely. The elements of trigonometry and the use of the slide rule should be taught. It is especially to be desired that mathematics and the other subjects be more closely connected.

[1] Heft 2, p. 37. [2] Ibid., p. 38. [3] Ibid., p. 35. [4] Ibid., pp. 39–41.

INDUSTRIAL SCHOOLS.

INDUSTRIAL CONTINUATION SCHOOLS.[1]

Organization and aim.—The industrial continuation schools have for their problem to give apprentices such necessary theoretical instruction as can not be given in the shop. The students are from 14 to 18 years of age. There is a preparatory class for those who have not completed the Volksschule, or who have not mastered the language in which the instruction is given. The course appears to be two years in length.

The teachers are mainly from the Volksschulen, Bürgerschulen, and Mittelschulen.

There are no final examinations.

COURSE OF STUDY IN MATHEMATICS.

Arithmetic. Only those parts are taught that have practical value. There is much use of tables in the solution of practical industrial problems.

Geometry. In the course in drawing some fundamental notions of geometry and projection are given.

Drawing. The course includes some work in freehand, geometrical, and projection drawing, with applications to the industries.

COURSES FOR MASTERS AND ASSISTANTS.[2]

These courses are given evenings and Sundays. The students must have completed their apprenticeship before entering the school, and must be 17 years of age or over.

The instruction in arithmetic follows the same lines as in the industrial continuation schools. The most important theorems and constructions of geometry are developed intuitively and concretely. Special emphasis is placed upon computations of surfaces, volumes, and weights. The instruction in projection is based upon observation and intuition.

Part of the teachers are from the secondary schools and part have technical training and practice.

GENERAL TRADE SCHOOLS.[3]

Organization and aim.—The aim of the general trade schools is to give the theoretical instruction and the practice which are necessary in learning a trade. The requirements for admission are an age of at least 12 years and evidence of having completed a course of study equivalent to the first six years of a Volksschule or the first year of a Bürgerschule. The students are as a rule from 12 to 15 years of age. As the compulsory school age in Austria is from 6 to 14, these

[1] Berichte über den mathematischen Unterricht in Österreich, Heft 4: Der mathematische Unterricht an den gewerblichen Lehranstalten, by Schulrat Wilhelm Rulf, pp. 56–59. Referred to hereafter as Heft 4.
[2] Ibid., pp. 59, 60.
[3] Heft 4, pp. 41, 42.

schools offer an opportunity for preparation for a trade during the last two years of compulsory school age.

The course is three years in length.

COURSE OF STUDY IN MATHEMATICS.

FIRST YEAR. (THE STUDENT'S SEVENTH SCHOOL YEAR.)

Industrial arithmetic. Applications of the fundamental operations with integers and fractions are made to simple practical problems.

Geometry. The geometry of this year is closely connected with the geometrical and projection drawing. From observation and examination of simple solids there is developed knowledge of their lines, angles, and surfaces, and also of the most important theorems of plane geometry. Representation of the principal sections of solids are made from models.

SECOND YEAR. (THE STUDENT'S EIGHTH SCHOOL YEAR.)

Industrial arithmetic. Positive and negative numbers are studied. Cost prices are computed from price lists. Selling prices are computed under given conditions as to capital involved and the cost of production.

Geometry. The course includes the graphical representation of geometrical bodies in orthogonal and oblique projection, and also of the plane sections of these bodies. Surfaces and volumes are computed and applications are made to practical industrial problems.

THIRD YEAR. (THE STUDENT'S NINTH SCHOOL YEAR.)

Industrial arithmetic. The subject matter of this course consists mainly of the solution of practical problems, and the discussion of such subjects as Government bonds, discount, exchange, and of the objects of savings banks and insurance companies.

Geometry. Plane sections and intersections of solids, and shades and shadows are studied.

Preparation of teachers.—The instruction is given, as a rule, by engineers and by specially prepared teachers from the Bürgerschulen.

TRADE SCHOOLS FOR PARTICULAR INDUSTRIES.

Organization and aim.—The aim of the instruction is to assist the students in learning a trade.[1] The emphasis here is placed upon drawing and the shop instruction. Students must be 14 years of age to enter. The course is three or four years in length.

COURSE OF STUDY IN MATHEMATICS.

Arithmetic. The object of arithmetic is to make the student familiar with the computations that arise in his trade, especially with those that involve the prices of materials and the values of foreign moneys.

Algebra is taught to a student if it is necessary for his trade. Emphasis is placed upon the evaluation of formulas, the solution of equations, and applications to the trades.

Geometry and geometrical drawing. Drawings of models are made to scale. The object of the work is to give the student ability to prepare and to read working drawings. Practice is given in computing surfaces and volumes.

Projective geometry. The emphasis is placed upon the representations of objects upon the three planes of projection and upon the development and computation of the surfaces of solids.

[1] These schools differ from the general trade schools just discussed in that the aim here is *gewerbliche Ausbildung*, and in the general trade schools the aim is *gewerbliche Vorbildung*.

Preparation of teachers.—The instruction is given by teachers from the Volksschulen, Bürgerschulen, and Mittelschulen, and by engineers.

SCHOOLS FOR THE BUILDING TRADES AND THE MECHANICAL ARTS.[1]

Organization and aim.—These schools have the problem of giving instruction to assistants in the building trades and the mechanical arts, and to prepare them for the master's examination.

For masons and carpenters there are two winter courses and a winter preparatory course, and for cabinetmakers, locksmiths, and workers in the mechanical arts there are two winter courses, a summer course, and a summer preparatory course.

Each course is of five months' duration.

In order to enter, a student must be at least 17 years of age, have completed his apprenticeship, and be in possession of such knowledge and skill as is expected of one who has completed two or three years in an industrial continuation school. Those who do not satisfy the last condition take a preparatory course.

COURSE OF STUDY IN MATHEMATICS.

Preparatory course. The instruction given here in industrial arithmetic and in geometry connected with the work in projection is the same, in the main, as that given in the first year of the industrial continuation school.

Courses for masons and carpenters.—Arithmetic and algebra. The work in arithmetic includes a review of squares and cubes, square and cube root, and applications to problems from the trades. The topics studied in algebra are the fundamental operations and the solution of equations so far as is necessary for the understanding and use of formulas.

Geometry. Areas and volumes are computed and applications are made to finding the volume and weight of various forms used in building. Some elementary work is done in trigonometry.

Courses for cabinetmakers, locksmiths, and workers in the mechanical arts.—Arithmetic and geometry. These courses are the same as those given above, except that the work in trigonometry is omitted. The arithmetic and geometry are taught with special reference to the needs of the trades. A second course in industrial arithmetic is given and is the same as that given in the third year in the general trade schools.

Projection drawing. The course includes plane sections and intersections of solids, shades and shadows, and practical applications to the building trades and to the mechanical arts.

Preparation of teachers.—The instruction is given by teachers who have taken both State examinations in the technical high school or by teachers from the Bürgerschulen.

SCHOOLS FOR MASTER WORKMEN.[2]

Organization and aim.—These are State industrial schools and have for their object to give theoretical and practical training to men who have had several years of practice and who wish to become master workmen or independent operators.

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[1] Heft 4, pp. 44, 45.

[2] Ibid., pp. 45–49.

In order to enter the school, a student must be at least 17 years of age, must have completed the Volksschule, and must have had several years of practice in his trade.

The length of the course is two or two and one-half years.

COURSE OF STUDY IN MATHEMATICS.

The courses in mathematics are not the same in the different schools, and the report does not outline them in detail. The following statements are thought to give fair approximations of the general conditions as given in the report:

Arithmetic. There is usually one semester of industrial arithmetic.

Algebra. A course in algebra is usually given which includes the solution of equations of the first degree and in some cases quadratic equations.

Geometry. The course in geometry extends through one, and in some cases two, semesters. Geometrical drawing is sometimes given in connection with the geometry.

Trigonometry. The elements of trigonometry are given in part of the schools.

Projection drawing. In some schools the course in projection drawing extends through two semesters. Much attention is given to applications.

Preparation of teachers.—The teachers are engineers or teachers from the Mittelschulen.

THE HIGHER INDUSTRIAL SCHOOLS.[1]

Organization and aim.—The aim of the higher industrial schools is to prepare men to fill the important positions in the industries.

The course is four years in length and has three divisions—for the building trades, for the chemical industries, and for the mechanical industries.

Admission is given to those who are 14 years of age and have finished a three-class Bürgerschule, or with good standing a three-class trade school or the fourth class of a Mittelschule.

Aim of the instruction in mathematics.—The chief aim of the work in mathematics is to prepare for the study of technical subjects.

COURSE OF STUDY IN MATHEMATICS.

FIRST YEAR. (THE STUDENT'S NINTH SCHOOL YEAR.)

Algebra. (Five to eight hours a week.) Algebra through quadratics.

Geometry. (Four to five hours a week.) The course includes a study of rectilinear figures, the circle, similar figures, the computation of areas, the trigonometrical solution of right triangles, and an introduction to solid geometry and to the theory of projection.

Geometrical drawing. (Four hours a week.) Exercises in geometrical construction and an introduction to the theory of projection are given.

SECOND YEAR.[2] (THE STUDENT'S TENTH SCHOOL YEAR.)

Algebra. The subjects studied are powers and roots, imaginary numbers, logarithms, equations of the second degree with one or more unknowns, exponential and

[1] Heft 4, pp. 49–53.

[2] The courses outlined for the chemical section are slightly different from those outlined here. The average amount of time given to algebra, geometry, and trigonometry in the second year in the different schools seems to be about seven hours a week.

indeterminate equations, progressions, compound interest and annuities, and the binomial theorem with positive integral exponents.

Geometry. The work here includes a short review of plane geometry, the elements of graphical computation, and something of solid geometry.

Trigonometry. The extent of the course is not given.

Projective geometry. (Seven to eight hours a week.) The principal topics studied are plane sections, intersections of solids, the most important parts of the theory of shadows and perspective, and applications taken from the trades of the students.

THIRD YEAR. (THE STUDENT'S ELEVENTH SCHOOL YEAR.)

"In the third year mathematics comes only in the mechanical-technical division and has from two and one-half to four hours a week. Review and extension of the material previously studied. Theory of curves: The straight line, the conic sections (elements of analytical geometry), the cyclic curves, and the spirals."[1]

Methods of instruction.—Much attention is given to the discussion of formulas, to the notion of a function as it appears in the formulas of mechanics, to graphical representation, and to maxima and minima. Simpson's rule is studied in geometry. In the study of curves those properties are developed which are of most importance in practice. Special attention is given to the cyclic curves and spirals.

Preparation of teachers.—The instruction is given by teachers from the Mittelschulen or by engineers.

HIGHER SCHOOLS FOR THE TEXTILE INDUSTRIES.[2]

Organization and aim.—The object of the higher schools for the textile industries is to furnish the necessary general and technical instruction for those who wish to prepare to become operators or officers of textile manufactories. These schools have mechanical and chemical departments.

The length of the course is four years.

In order to enter, the student must be 14 years old and have completed the third class of a Bürgerschule, or the fourth class of a Mittelschule.

COURSE OF STUDY IN MATHEMATICS.

FIRST YEAR. (THE STUDENT'S NINTH SCHOOL YEAR.)

Algebra. To the solution of equations of the first degree. Logarithms.

Geometry. Including areas of surfaces and graphical computation.

Trigonometry. The elements of trigonometry.

Geometrical drawing. This course includes the construction of rectilinear figures, conics, cycloids, evolutes, and introduction to the projection of lines, surfaces, and solids.

SECOND YEAR. (THE STUDENT'S TENTH SCHOOL YEAR.)

Arithmetic. This is a course in industrial arithmetic.

Algebra. This includes a review, logarithms, and quadratic equations in one unknown.

Geometry. Computations of surfaces and volumes.

Trigonometry. This includes the solution of right triangles.

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[1] Heft 4, p. 51.

[2] Ibid., pp. 53, 54.

Preparation of teachers.—The instruction is given by engineers and by teachers who are certificated to teach in the higher commercial schools.

INDUSTRIAL SCHOOLS FOR WOMEN.[1]

Organization and aim.—These schools give instruction to the women who are going into the garment-making trades, and they give also some instruction in the household arts.

The course is two years in length.

The only entrance condition given is that a student must have reached her fourteenth year.

COURSE OF STUDY IN MATHEMATICS.

FIRST YEAR. (THE STUDENT'S NINTH SCHOOL YEAR.)

Arithmetic. (Two hours a week.) There is a discussion of the lowest necessary income for women in the garment-making trade. A comparison is made between the wages commonly earned in the locality and the necessary expenses, including rent, heat, light, taxes, sickness, life and fire insurance, the use of a machine, and other items. There should be practice in mental arithmetic each recitation period.

SECOND YEAR. (THE STUDENT'S TENTH SCHOOL YEAR.)

Industrial arithmetic and bookkeeping. (Two hours a week.) There is a discussion of problems of buying and selling, loss and gain, cost of labor and general expenses, and the relations that exist between these quantities.

Preparation of teachers. The instruction is given by Volksschule and Bürgerschule teachers. Preference is given to applicants who have had courses in these industrial schools for women.

SCHOOLS FOR DOMESTIC SCIENCE.[2]

Organization and aim.—The aim of the *Koch- und Haushaltungsschulen* is to give courses in cooking and housekeeping. The length of the course is five months. In order to enter, a student must have reached her sixteenth year.

COURSE OF STUDY IN MATHEMATICS.

Arithmetic. (Two hours a week.) The principal topics studied are the metric system with applications to the cost of provisions and other household necessities; computation of household expenses by the day, week, month, and year; food values; cost of clothing, furniture, cooking utensils, and laundry; cost of light and heat; devices for saving; loss and gain; and insurance.

Preparation of teachers.—A teacher must hold a license to teach in a Volksschule or a Bürgerschule. Preference is given to applicants who have attended courses in these schools for domestic science.

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[1] Heft 4, p. 55. [2] Ibid., p. 56.

BELGIUM.

COMMERCIAL AND INDUSTRIAL SECTION OF THE ATHÉNÉES ROYAUX.

Organization.—The athénées royaux are public secondary schools with a course of seven years. The pupils enter at the age of 11. One division of the school devotes the most of its time to the study of the modern humanities. The three upper classes of this division are divided into two sections—the scientific and the commercial and industrial.

COURSE OF STUDY IN MATHEMATICS.

The work outlined below includes only the special work given to the commercial and industrial section. The remainder of the work in mathematics is the same as that given other students in the athénées royaux.

FIFTH YEAR. (THE STUDENT'S TENTH SCHOOL YEAR.)

This course deals with financial operations with long periods of time, and includes compound interest, discount, exchange, annuities, and perpetuities. Logarithms are used.

SIXTH YEAR. (THE STUDENT'S ELEVENTH SCHOOL YEAR.)

Theory of annuities and sinking funds.

SEVENTH YEAR. (THE STUDENT'S TWELFTH SCHOOL YEAR.)

The study of long-term financial operations is continued, including loans, insurance, and public obligations.

The *écoles moyennes* of Belgium have general, commercial, industrial, and agricultural sections, but all of these sections seem to have the same mathematical programs.[1]

DENMARK.

The fifth chapter of the Danish Report[2] treats the elementary technical, commercial, and navigation schools. These schools were founded first by industrial organizations and technical societies. They later came to be controlled and supported wholly or in part by the State.

COMMERCIAL SCHOOLS.

" The[3] greatest of these schools is the so-called 'Kobmandsskolen,' which was erected in Copenhagen by the 'Verein für Ausbildung junger Handelsleute' (number of students, 2,480 in 1910–11). In

[1] Rapports sur l'enseignement des mathématiques, du dessin et du travail manuel dans les écoles primaires, les écoles normales primaires, les écoles moyennes, les athénées, les collèges belges, vol. 1, pp. 216–218.

[2] Der Mathematikunterricht in Dänemark, by Poul Heegaard, pp. 64–72. Referred to hereafter as Danish Report.

[3] Ibid., pp. 70, 71.

the three-year evening school (school year Sept. 1 to May 31) there are divisions for professional subjects and elective subjects. In the day school (one year, six hours instruction daily; 24 crowns [about $6.50] monthly) more preparation is assumed. There is gone through in the teaching of arithmetic (in the evening school two hours weekly, in the one-year school five hours weekly) pure elementary arithmetic (*Rechnen*), percentage and interest, reduction of moneys and measures, simple and complex calculation, stocks, exchange, and discount. There is connected with this institute a commercial school with a two-year course, the so-called 'Niels Brocks Handelsskole' (arithmetic two and three hours)."

The evening classes are being more and more abandoned.

TECHNICAL SCHOOLS.[1]

There is no common prescribed course of study for these schools, and the following discussion is limited to the technical school in Copenhagen. This school has six divisions: Evening school, day school for builders, machine constructors and electrotechnologists, school for painters, and institute for metal workers.

EVENING SCHOOL.

The instruction is given from 4 to 9.30 in the following subjects:

Arithmetic and algebra, two winter semesters, 6 hours.
Plane geometry, one winter semester, 6 hours.
Trigonometry, one winter semester, 6 hours.
Geometrical drawing, about 48 hours.
Projection drawing, 84 hours.
Perspective and vocational drawing.

DAY SCHOOL FOR BUILDERS. (TAGESSCHULE FÜR BAUHANDWERKER.)

This school has a course of four winter semesters. The tuition is 80 crowns ($21.60). "It is assumed that the students have the general common-school education and such knowledge of arithmetic, algebra, geometry, and geometrical drawing as can be obtained in the evening school. Instruction in mathematics is given in the first two courses—in the first, 12; in the second, 6 hours a week. After a short review of the previous work there are gone through: Jul. Petersen, Aritmetik og Algebra II; C. Juel, Trigonometri og Stereometri for tekniske Skoler."[2] Drawing is given 12 hours a week the first semester.

The instruction in mathmetics and drawing in the Tagesschulen der Maschinenkonstrukteure und Elektrotechniker is the same as that just given.

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[1] Danish Report, pp. 65–70.

[2] Ibid., p. 65.

A number of examination questions from the above schools are given. These are of the usual textbook type. The following [1] are examples:

1. The following decimal fractions are to be written as common fractions and reduced: 0.4375; 0.592592·····; 1.1296296·····.

2. Find x in the equation: $\frac{x}{a-b}=\frac{x}{a+b}+2b$ and prove the correctness of the root found by substitution.

3. Compute: $x=\sqrt[5]{0.7809^{\sqrt{1.55}}}$.

4. Find the surface of a parallelogram with the sides a and b and an angle of 150°.

5. In a trapezoid ABCD, where BC and AD are the parallel sides given: AB=14m, BC=19.8m, AC=25.7m, and $\angle$D=67.38°. Find the surface of the trapezoid.

There exist special schools for certain trades. As an example a school for watchmakers is named, which gives a course of four years. The mathematics includes elementary arithmetic and algebra, geometry, trigonometry, the elements of analytical geometry, and of differential and integral calculus.

SCHOOLS FOR AGRICULTURE, FORESTRY, ETC.[2]

AGRICULTURE.

The higher instruction in agriculture is given in the Veterinary and Agricultural High School (Veterinär- und landwirtschäftliche Hochschule) in Copenhagen. Courses are given for veterinarians, farmers, surveyors, gardeners, and foresters. Instruction in mathematics is given only in the courses in surveying and forestry.

SURVEYORS' COURSES.[3]

There are three courses for surveyors, one of 1½ years, one of 1¼ years, and one of about 1 year. In the first course there are four or five hours of instruction in mathematics in the following courses:

Arithmetic. This course includes mental arithmetic, use of slide rule and tables.

Algebra. The principal topics are permutations and combinations, binomial theorem, elementary theory of equations, logarithms, compound interest, and annuities.

Trigonometry. This course includes the elements of both plane and spherical trigonometry.

Solid geometry. This course includes theorems concerning lines and planes, polyhedrons, cylinders, cones, and spheres.

Analytical geometry. This is a course in the elements of plane analytical geometry.

Differential calculus. Differentiation of algebraic, trigonometric, and exponential functions, indeterminate forms, complete differential, maxima and minima, and some applications to geometry are taken up in this course.

Integral calculus. This is a course of about the same extent as that in differential calculus.

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[1] Danish Report, pp. 66–67. [2] Ibid., pp. 79–83. [3] Ibid., p. 80.

FORESTERS' COURSE.[1]

The foresters have two courses, one of 1½ years, the other of about 2 years. In the first course they have four or five hours a week in mathematics. They have the same instruction in arithmetic, algebra, plane geometry, solid geometry, and analytical geometry as the surveyors. They have only the elements of calculus. A course in the theory of errors is given.

INSTRUCTION IN NAVIGATION.[2]

This instruction is given in private schools that are recognized and supported by the State. The examinations are under the examining commission appointed by the minister of commerce. There are four grades of examination: (1) For seamen making short journeys; (2) for fishermen; (3) the general pilot's examination, which is also taken by sea captains; (4) the extended pilot's examination. In all of these an elementary knowledge of mathematics is demanded. In (2) the examination includes practical computation with integers and fractions, proportion, the circle, triangles, the sphere, and lines on its surface. Knowledge of the theorems in arithmetic, plane geometry, trigonometry, and solid geometry are required in (3), but no proofs are required.

FINLAND.

COMMERCIAL SCHOOLS.[3]

The report mentions three kinds of commercial schools, the schools for commercial employees (Écoles pour les Employées de Commerce), schools of commerce (Écoles de Commerce), and commercial institutes (Instituts Commerciaux). These schools are under the control of cities or private associations, and if they fulfill certain conditions receive partial support from the State. It is said that about one-sixth of the time spent in the schools is given to the study of mathematics.

No entrance requirements are given for the Écoles pour les Employées de Commerce. The course of study gives at least 12 hours of work a week for 1 or 2 years. The age of entrance is about 14 or 15 years. In arithmetic a review of the elementary school courses is given, with special reference to the calculation of prices, percentages, and interest. These schools seem to correspond to the commercial continuation schools in other countries.

The Écoles de Commerce require for entrance the completion of the primary school course (six years). The age of entrance is about

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[1] Danish Report, p. 82.

[2] Ibid., p. 71.

[3] Rapport sur l'Enseignement des Math. dans les Écoles de Finlande, VIII, pp. 34, 35. Referred to hereafter as Rapport.

16 years. There is a two years' course. The work in mathematics includes commercial calculation, the more important properties of geometrical figures, and computations of areas and volumes.

Students may enter the Instituts Commerciaux if they have completed the first five classes of a lycée real,[1] or if they have completed the secondary school, a school for girls, or a school of commerce. The average age at entrance is 16 or 17 years. The courses are two or three years in length. These schools are coeducational.

The students enter the Instituts Commerciaux with some knowledge of arithmetic, of the fundamental operations in algebra, and the solution of the equation of the first degree in one unknown, and of the elements of plane geometry. The course in the school includes political and commercial arithmetic, algebra, with the solution of equations and applications to annuities and life insurance, and elementary geometry.

The above facts include practically all that is given concerning these schools in the report from Finland.

INDUSTRIAL AND TECHNICAL SCHOOLS.

LOWER[2] TECHNICAL SCHOOLS (ÉCOLES TECHNIQUES INFÉRIEURES.)

I. The manual training schools (Écoles de Travaux Manuels)[3] are usually situated in the country. These are schools for artisans of various sorts and give courses of one or two years. The work in arithmetic involves the calculation of prices and of surfaces and volumes.

II. The lower and higher trade schools (Écoles de Métiers Inférieures et Supérieures)[3] require for admission the completion of the elementary school. The lengths of the courses are one, two, and occasionally three years of eight months each. These are evening schools and have for their object to give artisans the necessary theory and practice for their trades.

The only mathematics given in the Écoles Inférieures is a review of the elementary school course in arithmetic.

The following courses are given in the Écoles Supérieures:

Arithmetic, two hours a week the first year. This gives a review of the elementary school course.

Algebra, two hours a week the second year. The fundamental operations and equations of the first degree in one unknown are studied.

Elementary descriptive geometry, two hours a week the second year.

VOCATIONAL SCHOOLS (ÉCOLES PROFESSIONELLES).[4]

Organization.—The requirement for admission is the completion of the elementary school. The students enter at the age of 13 or 14 years. The courses require from 12 to 20 hours a week. The

[1] Four years of primary school work are required for entrance to a lycée.
[2] Rapport, VIII, p. 36.
[3] Ibid., pp. 36, 37.
[4] Ibid., pp. 38, 39.

length of these courses is not given, but it is apparently two years. These schools, it seems, are supported by the cities. They have for their object to give the students the necessary practical and theoretical preparation for the practice of a trade. There are not many of these schools, and they are said to be new in Finland.

COURSE OF STUDY IN MATHEMATICS.

The following courses are given in the schools for boys. Only arithmetic is given in the schools for girls.

Arithmetic. (Classes I and II, five and three hours a week.) This course includes a review of the work of the elementary school, extraction of roots, proportion, percentage, and calculation of prices.

Algebra. This course extends through equations of the first degree in one unknown.

Geometry. (Classes I and II, four and two hours a week.) This course takes up the elementary theorems, calculation of surfaces and volumes, and problems concerning materials used in the shops.

Descriptive geometry. (Class I.) Elementary notions.

There are no leaving examinations. Most of the teachers in the boys' schools are technologists; in the girls' schools they are women primary and manual-training teachers.

INDUSTRIAL SCHOOLS (ÉCOLES INDUSTRIELLES).[1]

Organization.—To enter an industrial school a student must have finished the elementary school and have had one year of practice in a shop; or have finished four years of a secondary school, in which case no shop work is required. The minimum entrance age is 17 years, and the average age of the students is 23. To complete the course requires two years, six months a year, with 39 or 40 hours of work a week.

Aim of the instruction.—The aim of these schools is to educate skilled workmen and foremen, and prepare mechanics and chauffeurs to take the public examination.

COURSE OF STUDY IN MATHEMATICS.

Arithmetic and algebra. (Classes I and II, six and two hours a week.) This is a review of arithmetic with application to vocational problems. The algebra goes through equations of the second degree in one unknown.

Geometry. (Classes I and II, four and two hours a week.) This course includes the principal theorems of elementary geometry, calculations of areas and volumes, and applications to vocational problems.

Descriptive geometry. (Classes I and II, four and two hours a week.) This is a course in the elements of descriptive geometry.

Mechanics and theory of resistance. (Classes I and II, two and four hours a week.) This course deals with elementary mechanics and resistance of materials.

Books used.—The book used in mechanics is specially prepared for these schools. The books used in the other courses are the same as those used in the secondary schools.

[1] Rapport, VIII, p. 39.

Preparation of teachers.—The teachers must have had a course in a technical high school and have had at least one year of practical work.

FRANCE.

HIGHER PRIMARY SCHOOLS FOR BOYS.[1]

Organization.—These higher primary schools for boys are a part of the regular public elementary school system. In order to be admitted, the pupils must possess the certificate of primary studies and have had, in addition thereto, one year of instruction in the higher course of an elementary primary school. Hence, before entering the higher primary school the pupils have had seven years of schooling. The course is three years in length.

Aim of instruction.[2]—The students prepare in the higher primary schools to go into industry, commerce, agriculture, and similar vocations, or prepare for certain State examinations. "One does not take up in the school the apprenticeship of any profession in particular, but prepares himself for the intelligent practice of many which have, from the point of view of technique, numerous points in common; in other words, we put the future worker on a good road, in a definite direction (agriculture, industry)."

COURSE OF STUDY IN MATHEMATICS.[3]

In the first year of the course the instruction for all students is the same, but during the last two years there are five sections—general, agricultural, industrial, commercial, and maritime.

FIRST YEAR. (THE STUDENT'S EIGHTH SCHOOL YEAR) COMMON INSTRUCTION.

Arithmetic.[4] (Three hours with algebra.) The course includes the fundamental operations, greatest common divisor, least common multiple, metric system, common and decimal fractions, and square root.

Algebra.[5] Fundamental operations, limited to applications to simple problems. (Part of the time allotted to algebra in the program is taken for topics of arithmetic, such as the rule of three, interest, and discount.)

Geometry.[6] (One hour a week.) The course includes the use of ruler, square, and compasses, study of triangles, parallelograms, the circle, constructions, projection—the projection of a point, line, plane, and the simpler solids. Applications are made to manual training, such as the work in wood and pasteboard.

Geometrical drawing.[7] Free-hand sketches and drawings to scale of simple geometrical solids, and later of other objects, such as the materials and tools used in the manual-training shop.

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[1] Rapports de la Commission internationale, Sous-Commission française, Vol. I, L'Enseignement primaire, by M. Ch. Bloche, p. 17. Referred to hereafter as Vol. I.
[2] Ibid., p. 17.
[3] Ibid., pp. 23–38.
[4] Ibid., p. 23.
[5] Ibid., p. 23.
[6] Ibid., p. 26.
[7] Ibid., p. 27.

Experimental geometry.[1] (One hour for two-thirds of a year.) A large variety of geometrical models are made from cardboard. Plaster modeling and decoration.

SECTION OF GENERAL INSTRUCTION.

Arithmetic.[2] (Three hours with algebra.) Second year. (The student's ninth school year.) Ratio and proportion, quantities directly and inversely proportional.

Third year. (The student's tenth school year.) Review and supplementary work in preparation for examination.

Algebra.[2] Second year. (The student's ninth school year.) The course includes the fundamental operations with positive and negative numbers (the general case of multiplication and division of polynomials not included); equations of the first degree with one or more unknowns, and applications to problems of arithmetic and geometry; arithmetical and geometrical progressions, logarithms, compound interest, and annuities. Emphasis is placed on rapid calculation.

Third year. (The student's tenth school year.) Review and supplementary work in preparation for examinations.

Geometry.[3] (One hour.) Second year. (The student's ninth school year.) The topics studied include proportional lines and similar figures, regular polygons, value of π, definitions of sine, cosine, and tangent, and formulas relating to the right triangle, lines and planes in space, polyhedral angles.

Third year. (The student's tenth school year.) This year's work includes areas and volumes, similar solids, elementary problems in descriptive geometry, and review for examinations.

Geometrical drawing.[1] (Three hours.) Second and third years. (The student's ninth and tenth school years.) There is a continuation of the exercises of the first year (geometrical and perspective drawings). Review, with supplementary work, for examination.

AGRICULTURAL SECTION.

The programs for arithmetic, algebra, and geometry are the same as those for the general section, less the reviews and the special preparations for examinations.

Applied mathematics.[4] (One hour.) Second year. (The student's ninth school year.) The course includes a practical study of certain instruments, such as the chain, square, graphometer, compass, level, plane table; sketching, measuring the distance to an inaccessible point, study of the method of land surveying; practical measurements, as of wood, piles of stone or coal, wagons and reservoirs; practice in methods of weighing.

Drawing.[4] (One hour, except in spring.) Second year. (The student's ninth school year.) This course includes geometrical drawings and free-hand sketches of tools and parts of agricultural implements. Drawing to scale of sketches made in the field.

Third year. (The student's tenth school year.) There is a continuation of exercises for the second year. Applications are made to agricultural instruments and construction of buildings, such as sheds and stables.

Mechanics.[4] (One hour each year.) Same program as the Industrial Section.

INDUSTRIAL SECTION.

The programs for arithmetic, algebra, and geometry include those for the General Section, less the reviews and special preparations for examinations. Two hours a week in the second and third years

[1] Vol. I, p. 27. [2] Ibid., p. 24. [3] Ibid., p. 26. [4] Ibid., p. 29.

are given to this common instruction and one hour a week to special instruction in the following subject matter:

Arithmetic, algebra, and geometry.[1] (One hour.) Second year. (The student's ninth school year.) Graphical representations of algebraic operations. Definition of a function of a variable. Graphical representations of data, such as statistics and railroad time-tables. Arithmetical and geometrical progressions. Exponential function and its representation by a curve. Logarithms. Slide rule. Measures of surfaces and volumes. Applications to exercises from the shop.

Third year. (The student's tenth year school.) The course includes continued use of the slide rule, graphical study of curves of the second degree, construction and properties of other curves commonly used in building, and construction of diagrams from descriptive geometry for platbands, various kinds of arches, and other forms. Review.

Geometrical drawing.[2] Second year. (The student's ninth school year.) The course consists of some exercises in projection, with applications, according to the special work of the pupil, to work in metal or wood and sketching and drawing to scale.

Third year. (The student's tenth school year.) There is a continuation of preceding exercises and applications, according to the special work of the pupil, to mechanics, electricity, carpentry, modeling, and other subjects.

Mechanics.[3] Second year. (One hour.) (The student's ninth school year.) Statics, including balanced forces, moments of forces, couples, composition, resolution and substitution of forces, center of gravity.

Dynamics. There is a study of force, energy, work, friction, simple machines, and the steam engine.

Third year. (Two hours.) (The student's tenth school year.) Section for mechanics. The application of the principles studied in the second year to the study of the details of the machines used in the shops.

Section for builders. A study is made of strength of materials, resistance to flexion, crushing, pulling, and similar questions. There is a study in detail of problems of construction.

COMMERCIAL SECTION.

In both the second and the third year two hours a week are given to arithmetic and algebra in common with the general section, and one hour a week to rapid calculation.

Rapid calculation.[4] (One hour.) This is a course in commercial arithmetic, which includes simplifications and processes employed by accountants, numerous exercises for oral and written calculation taken from commercial practice, use of the slide rule as a check, and foreign moneys and measures.

MARITIME SECTION.

"The[4] special program of the maritime section includes certain complements to the program of the general section and the application of mathematics to the nautical operations."

Arithmetic.[5] (One hour each year to arithmetic, algebra, and geometry.) The course includes measures, with special reference to nautical units, and a consideration of the approximate errors in computation.

Algebra. "Practical[5] solution of biquadratic and some very simple irrational equations."

Geometry. "Theorems[5] concerning trihedral angles. Sum of the face angles of a polyhedron. Sphere. Angle of two great circles. Spherical triangles."

[1] Vol. I, p. 30. [2] Ibid., p. 34. [3] Ibid., pp. 30-34. [4] Ibid., p. 35. [5] Ibid., p. 36.

Trigonometry.[1] (One hour.) Third year. (The student's tenth school year.) This course includes elements of plane trigonometry, including the fundamental formulas and the solution of triangles, and the fundamental formulas of spherical trigonometry.

Nautical instruction.[2] (Two hours.) Second year. (The student's ninth school year.) A study is made of the elements of mathematical geography, nautical signals, maritime maps, nautical instruments, and tides, with practical exercises.

Third year. (The student's tenth school year.) This is an extension of the above, with applications to navigation.

Amount of vocational mathematics in the programs.—The program for the section of general instruction contains no distinctly vocational material. The applied mathematics and the design given in the agricultural section are vocational and the mechanics essentially so. One-third of the time given to arithmetic, algebra, and geometry in the industrial section in the second and third years is given to applications to industrial questions. The geometrical drawing and mechanics are both vocational in this section. Rapid calculation and business applications are distinctive features of the instruction in the commercial section. The supplementary work in arithmetic, algebra, and geometry in the maritime section contains some topics having special application to navigation; and the nautical instruction is applied mathematics so far as it is mathematics. It appears from this survey that all the special sections get some vocational mathematics, but that it either follows the conventional work in arithmetic, algebra, and geometry or is taught separately to the particular group of pupils desiring it.

Methods of instruction.—The official instructions demand that the subject matter be kept free from unnecessary theory and technicalities, that the instruction be concrete, and that the examples be practical. "The course[3] proper will be of extreme simplicity; it will be relieved in particular of the theoretical developments in numeration and the fundamental operations, and in finding the greatest common divisor (method of successive division)." "These problems[1] (of arithmetic) will be related to ordinary and social life, to commerce, to industry, to the arts, and to agriculture. Questions of a purely speculative order should be omitted." "The teaching of geometry[4] should be essentially concrete; its aim is to classify and to make precise certain notions acquired by observation, to deduce from these others, and to show their applications to some problems that are found in practice."

Examinations.[5]—After the completion of three years' work in the higher primary schools, the students may take an official examination given at the school for the certificate of primary studies. The report contains several questions in mathematics taken from these examinations. With the exception of a problem given to

[1] Vol. I, p. 36. [2] Ibid., p. 37. [3] Ibid., p. 22. [4] Ibid., p. 24. [5] Ibid., p. 38.

candidates from the commercial section, the problems are of a general nature and do not involve vocational questions.

Preparation of teachers.—The teachers in the higher primary schools must have the *brevet supérieur*, to obtain which they must spend three years in a normal school and then pass an examination. The examination in mathematics includes arithmetic, algebra, and geometry. The normal school course gives three hours to mathematics in the first year, four hours in the second year, and two hours in the third year.

HIGHER PRIMARY SCHOOLS OF THE CITY OF PARIS.[1]

The higher municipal schools of the city of Paris give a course of four years. With the exception of certain students in one school who pay tuition, all students are admitted by competitive examination and must be between the ages of 12 and 15 years. The examination in mathematics is in arithmetic, with some geometrical applications. The schools have two sections, general and commercial.

The course of study in arithmetic, algebra, and geometry in the first three years contains about the same material as the course for the higher primary schools, but less time is given to mathematics. The work of the fourth year is given to a general review and preparation for examinations.

These schools prepare for the certificate of primary studies, for the *brevet élémentaire*, and for admission to various professional schools.

PRACTICAL SCHOOLS OF COMMERCE AND INDUSTRY.[2]

Organization.—There are 28 of these schools in France. They are State schools and not compulsory. For admission students may present the certificate of primary instruction or pass an examination similar to the one taken for that certificate. Hence, before entering, the student has completed a course of six years in an elementary school. The age of entrance is from 12 to 13 years. The mathematical preparation is a study of arithmetic with some applications to mensuration. The students are said to lack proficiency in the operations of arithmetic. "Their knowledge[3] is vague, confused, and above all they do not possess in the practice of calculation skill sufficient to deal with accuracy with the usual applications of arithmetic." The majority of students spend a year in a preparatory class before entering the regular three years' course.

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[1] Vol. 1, p. 43.

[2] Rapports de la Commission internationale, Sous-Commission francaise, Vol. IV, L'Enseignement technique, by M. P. Rollet, pp. 7–71. Referred to hereafter as Vol. IV.

[3] Ibid., p. 53.

These schools have an industrial section and a commercial section.

Aim of instruction.—The aim of these schools is to furnish "an apprenticeship [1] in an industrial or commercial occupation under such conditions that on leaving the school the student may be immediately utilizable in industry or commerce."

The official instructions emphasize the idea that utility should be the aim of instruction. In particular, arithmetic should increase the ability to perform the necessary calculations of business; algebra should give ability to understand and apply formulas and to solve problems by algebraic methods; and geometry is to be the basis of design and to be used in the solution of practical problems.

INDUSTRIAL SECTION.

COURSES OF STUDY IN MATHEMATICS.

Arithmetic.[2] First year. (The student's seventh school year.) (Three hours a week.) This course includes the fundamental operations with integers and fractions, powers, square and cube root, metric system, measure of time, circumference of the circle, English measures of length, ratio and proportion, rule of three, and percentage and its applications. There is special emphasis throughout on rapid calculation.

Algebra.[3] Second year. (The student's seventh school year.) (Two hours a week.) This course includes the fundamental operations, equations of the first degree in one or two unknowns, quadratic equations, simple progressions, and logarithms.

Geometry.[4] First year. (The student's seventh school year.) (Three hours a week.) This course is a combination of plane and solid geometry, the corresponding notions in the two being developed side by side. It includes the properties of triangles, parallelograms, and circles, and of lines and planes in space.

Second year. (The student's eighth school year.) (Two hours a week.) This year's work includes ratio and proportion, similar figures, regular polygons, value of π, and length of circumference, surfaces of the usual plane figures and properties, surfaces and volumes of the usual solids. [One sees nothing in the outline of the course to differentiate it from the usual school course, so far as topics are concerned.]

Descriptive geometry applied to design.[5] Third year. (The student's ninth school year.) (One hour a week.) This course includes the projections of points, lines and the simpler geometrical solids, intersections of lines, surfaces, and solids; and the development of sections of the simple solids. Applications are made to the various trades.

Mechanics.[6] Third year. (The student's ninth school year.) (Two hours a week.) Principles of general mechanics: The course includes preliminary notions, composition and resolution of forces, moments, weight, center of gravity, equilibrium, motion, work; applications of the principles studied to simple machines; falling bodies, conservation of work, centrifugal force, simple and compound pendulum, friction, and study of certain mechanisms and simple machines.

Applied mechanics: The principal topics are the resistance of materials, hydraulic motors, and steam engines. Besides the above, the mechanicians receive instruction in their particular fields.

Geometrical drawing.[7] This is a course in geometrical drawing with special application to the different industries. To this course are given six hours a week during the first year, seven hours a week during the second, and seven hours a week during the third year.

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[1] Rapports de la Commission internationale, Sous-Commission francaise, Vol. IV, L'Enseignement technique, by M. P. Rollet, p. 34. Referred to hereafter as Vol. IV.
[2] Vol. IV, p. 10.
[3] Ibid., p. 11.
[4] Ibid., pp. 12–15.
[5] Ibid., pp. 16, 17.
[6] Ibid., pp. 18–24.
[7] Ibid., p. 24–28.

COMMERCIAL SECTION.

Arithmetic and algebra.[1]—Essentially the same subject matter is taken up as in the industrial section, plus a discussion of compound interest and annuities. Three hours a week are given in each the first and second years. More time is given to arithmetic than to algebra.

Commerce and bookkeeping.[2]—This is an extended course in the details of the theory and practice of commerce and bookkeeping. It deals with such subjects as general methods of commerce, exchange, transportation, post and telegraph, banking, boards of trade, insurance, and business organization.

Six hours a week in the first year and three in both the second and third are given to commerce and bookkeeping. In both the second and third years, six hours are given commercial exercises.

The limits of this report will not permit a statement of the details of the above courses as they are outlined. It may be said, however, that the outlines for the courses in arithmetic, algebra, and geometry contain in the main conventional material, but that much that is purely theoretical is omitted.

Methods of instruction.—In the report and in the official instructions emphasis is continually placed upon making the instruction simple and concrete. In the teaching of geometry [3] it is said that whenever "it is possible to simplify the instruction without injuring the precision or the rigor of the reasoning, the master will hasten to do it; experience will give the greatest possible contribution." Geometrical notions,[4] such as dihedral, perpendicular to a plane, solids and surfaces of revolution, are to be illustrated with familiar objects. The different plane and solid figures [5] are to be constructed from wood or cardboard. Theorems are demonstrated by the use of these solids.

In the algebra [6] the theory is reduced to the minimum strictly indispensable to the comprehension of the usual operations.

The principles of mechanics [7] are taught generally "not as demonstrable truths, but as incontestable principles of experience and observation." "The instruction [8] will be above all experimental." "For the dry abstract mathematical demonstrations,[9] of which the sacrifice is voluntarily made, we substitute simple and striking experimental verifications."

Problems.—The exercises [10] should be as far as possible practical. "It is above all in the choice of the exercises given that the professor of a technical school gives his instruction the really professional character." [11] "In a problem [11] the form of statement itself counts for much more than we are inclined to believe. The exercises

[1] Vol. IV, p. 28, 29.
[2] Ibid., pp. 29–32.
[3] Ibid., p. 41.
[4] Ibid., p. 42.
[5] Ibid., pp. 42, 43.
[6] Ibid., p. 61.
[7] Ibid., p. 66.
[8] Ibid., p. 18.
[9] Ibid., p. 67.
[10] Ibid., p. 28.
[11] Ibid., p. 44.

given ought then, as much as possible, to be based upon real conditions and be adapted to the needs of commercial, industrial, or everyday life." Two examples[1] accompanied by sketches are given to illustrate this point. This remark follows:

"The preceding statements,[1] with their practical appearance and the sketch given, interest the pupils to a degree quite different from that of the problems of the same difficulty, but with vague statements or without conditions really practical."

Some good suggestions[2] are given concerning possible sources of applied problems in the different trades.

The instruction[3] in mechanics is to be adapted to the needs of the locality, and the problems made as practical as possible.

Use of books.—The short time[4] given to the instruction and the large classes make it necessary to use a book as a basis for the work in geometry. The theory is supposed to be developed in class, the student taking notes. The book is used to supplement the notes and for exercises.

Examinations.[5]—At the end of the course the students may take an examination for the practical, industrial, or commercial certificate of studies. This includes a written examination on practical arithmetic and geometry, and an oral one on arithmetic, bookkeeping, geometry, mechanics, and technology.

Preparation of teachers.[6]—There are special normal sections in the School of Advanced Commercial Studies in Paris, and in the School of Arts and Crafts in Chalons-sur-Marne, for the preparation of teachers for the commercial and industrial schools. Students are admitted to these sections by examination, and must give evidence of a substantial and extended knowledge of mathematics. "During two years[7] the students follow the courses and exercises of the laboratory and the shops of the School of Advanced Commercial Studies, or of the School of Arts and Crafts, they receive the general instruction of the school to which they are attached, get the necessary professional preparation, and complete their studies with some special conferences having at the same time a pedagogic and educative character." This work is followed by an examination for the certificate to teach the commercial or industrial branches. To this examination are admitted, however, any candidates, who may have obtained their preparation in very different ways.

The teaching of arithmetic in these technical and commercial schools is said to be very satisfactory. "Accepting[8] the influence of the technical atmosphere in which they live, the professors of mathematics have succeeded in giving their instruction a distinctive character and in making it practical, without losing sight of the educative purpose which is the characteristic of mathematics."

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[1] Vol. IV, p. 45. [2] Ibid., p. 68. [3] Ibid., p. 34. [7] Ibid., p. 4.
[2] Ibid., p. 46. [4] Ibid., p. 43. [6] Ibid., pp. 3–5. [8] Ibid., p. 5.

Tendencies.—In speaking of the instruction in geometry it is said that "the official instructions [1] and the new manuals of instruction are characterized by a twofold change: First, in the method; second, in the presentation.

"The reform in method consists in the abandonment of the Euclidian edifice for which we substitute a geometry in which the displacements (rotation and translation) play a preponderant rôle. That method has the advantage of being more intuitive and of arranging the geometrical facts in an order of increasing difficulty graphically.

"The reform in presentation is characterized by bringing into closer relation the principles relating to plane figures and those concerning figures of three dimensions. This method has for its aim to accustom the student to deal with space from the beginning of his study and to lead naturally to the reading in industrial design."

NATIONAL VOCATIONAL SCHOOLS.[2]

There are four of these schools in France. They are State schools under the control of the minister of commerce and industry. The admission is by competitive examination, and the candidates must be between the ages of 12 and 15. The examination in mathematics is limited to arithmetic, and includes only the work covered in the higher course of the elementary primary schools. The length of the course of study is four years.

These schools [3] have the same aims and employ the same means as the practical schools of commerce and industry. They have the advantage of offering a course of four years instead of three, and of requiring students to be a little farther advanced at entrance. The course in mathematics contains considerably more material than the course in the practical schools for commerce and industry. In algebra more work is given in logarithms and applications to compound interest and annuities, and maxima and minima. In geometry an extra year's work is given to geometrical applications and to the consideration of the conic sections and some higher plane curves. A course is given in plane trigonometry which includes the solution of oblique triangles. There are two years of mechanics giving special attention to applications to machines, in particular gas, hydraulic, and steam motors.

The work in geometrical drawing extends through the four years. In the last two years the students are divided into two sections, one for woodworkers and one for ironworkers, and special applications to the trades are made.

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[1] Vol. IV, pp. 39, 40. [2] Ibid., pp. 87–97. [3] Ibid., pp. 89, 90.

THE VOCATIONAL INSTRUCTION OF GIRLS.[1]

Organization.—The schools giving this instruction are known in Paris as the *écoles professionelles et ménagères*, and in the country as the *écoles pratiques de commerce*. The students enter between the ages of 12 and 15. The length of the course is three years. The schools are under the control of the minister of commerce, and have industrial and commercial sections. The aim of these schools is practical, but the methods of instruction are expected to be such as to develop the general intelligence of the students.

Schedule of hours.[2]—In the country, where these schools are said to occupy a more important place than in Paris, the usual schedule of hours is as follows: In the first and second years there are 18 hours of class work and 24 hours of practical work; in the third year 10 hours of class work and 32 hours of practical work.

Hours given to mathematics in the industrial section.

Studies.	Practical schools (country).			Vocational schools (Paris).	
	First year.	Second year.	Third year.	First year.	Second year.
Arithmetic	1½	1½	.....	1½	1½
Geometry	.....	1½	1½	1½	1½

The commercial section gives three hours a week for three years to arithmetic.

COURSE OF STUDY IN MATHEMATICS.

Arithmetic.[3] Considerable latitude in the choice of material is said to be given the teachers in the country schools. The courses usually include the metric system, greatest common divisor, least common multiple, common and decimal fractions, applications of proportion, the rule of three, and practical problems. The programs for Paris name the additional topics: Interest and discount, foreign moneys and measures, problems about surface, volume, weight, and density. In the commercial section more time is given to commercial problems.

Geometry.[4] The course includes the elements of plane geometry, with many constructions and applications to practical problems.

Methods of instruction.—Both the topics chosen and the nature of the problems show that the work in mathematics is intended to be vocational. There are said to be no books well adapted to the instruction given, either in arithmetic or geometry.

Examinations.[5]—Oral and written examinations for a certificate of studies are given at the end of the course in certain schools.

Preparation of teachers.[5]—The teachers are prepared generally in the normal section of the Practical School of Havre.

[1] Rapports de la Commission internationale, Sous-Commission française, Vol. V, L'Enseignement professionel des jeunes filles, by Mlle. Amieux, pp. 65–76. Referred to hereafter as Vol. V.
[2] Ibid., pp. 66, 67.
[3] Ibid., p. 69.
[4] Ibid., pp. 75, 76.
[5] Ibid., p. 73.

GERMANY.

COMMERCIAL SCHOOLS.[1]

Kinds of commercial schools.—The following kinds of commercial schools exist in Germany:[2]

A. Commercial colleges (Handelshochschulen).
B. Commercial schools.
   1. Public higher commercial schools.
   2. One-year course for young persons with the certificate for one-year military service.
   3. Handelsrealschulen.
   4. Public commercial schools which give the certificate for one-year military service.
   5. Private commercial schools which give the certificate for one-year military service.
   6. One-year course for young persons without the certificate for one-year military service.
   7. Commercial classes in Realschulen.
C. Commercial continuation schools.
   1. Compulsory commercial continuation schools.
   2. Noncompulsory commercial continuation schools.
D. Commercial schools for female employees.
   1. Compulsory commercial continuation schools.
   2. Noncompulsory schools.
      (*a*) Commercial schools and commercial courses.
      (*b*) Free continuation schools and courses.

These schools may be grouped according to the time at which the vocational instruction is given into the following classes:[3]

1. Those that give the vocational instruction during the apprenticeship: Commercial schools for apprentices.
2. Those that give the vocational instruction before the apprenticeship:
   (*a*) After completing the general education: Commercial preparatory schools and higher commercial schools.
   (*b*) During the general education: Handelsrealschulen.
3. After the apprenticeship: Handelshochschulen.

COMMERCIAL CONTINUATION SCHOOLS.[4]

Organization.—These commercial continuation schools are supported in the main by the State, city, or community. Some are supported by commercial corporations and associations. Attendance is usually, though not always, required of merchants' apprentices during the three years of apprenticeship.

In order to enter a commercial continuation school a student must have completed the Volksschule, or be past the compulsory school

[1] Rechnen und Mathematik im Unterricht der kaufmännischen Lehranstalten, by Dr. B. Penndorf. This is Band IV, Heft 6, of the German Reports, and is referred to hereafter as Band IV, Heft 6.
[2] Ibid., p. 4.
[3] Ibid., p. 5.
[4] Ibid., pp. 7-38.

age. Entrance examinations are given in German and arithmetic in some schools. Candidates not passing these examinations must go into a preparatory class.

The length of the course is three years. In most parts of Germany the average number of hours of instruction a week is 6. In the most of the commercial continuation schools of Baden 8 or 9 hours a week are given, and in Saxony the average is 12 hours a week.

Aim of the instruction.—These are vocational schools, and aim to give practical instruction to young people entering commercial life. The aim of the instruction in arithmetic is "the development of the ability to carry through the computations arising in commercial transactions, concisely, clearly, accurately, and independently." [1] Furthermore, by the discussion and solution of problems the students should be given a better understanding of certain phases of commercial life. Calculation must be made the central point of the instruction, and must be regarded as the most important part of commercial arithmetic.

COURSE OF STUDY IN MATHEMATICS.

The following work is prescribed for the Prussian commercial continuation schools.[2] The courses outlined for other States are very similar to this.

Preparatory course. (Three hours a week.) There is a review of the fundamental operations with special reference to multiplication, much practice with problems involving the German units of money, volume, and weight, and applications to problems from commercial life.

First year. (The student's ninth school year.) (Two hours a week.) The course includes applications of the fundamental operations in computing prices; the most important units of money, volume, and weight used in international commerce; examples arising from transactions with the railroads and the post office; the chain rule.

Second year. (The student's tenth school year.) (Two hours a week.) The principal topics studied are percentage, interest, discount, equation of payments, and the computation of prices of goods.

Third year. (The student's eleventh school year.) (One or two hours a week.) In this course are studied accounts current, exchange, stocks, and the computation of prices of goods.

"Besides this graded material [3] there are to be given occasionally examples from the administration of the municipality and the State, and from taxation and insurance."

"If the preparation of the students is good, an introduction to percentage can be given in the first year and accounts current in the second year. If the preparation of the students leaves something to be desired, it is necessary to reduce the material as much as possible."

Nature of the instruction.—As the course of study shows, the subject matter in arithmetic is that which is supposed to be of most practical value to people who will engage in commercial work. It is made a

[1] Band IV, Heft 6, p. 2. [2] Ibid., pp. 28, 29. [3] Ibid., p. 29.

fundamental principle that only such examples be considered as have practical value. "Questions [1] requiring the finding of the time and capital in interest and discount, difficult computations with common fractions, examples from compound proportion, unusual computations with money, etc., are therefore eliminated, and problems concerning such things as prices must correspond as nearly as possible to actual conditions. From the practice, for the practice, that is the watchword."

The official regulations in Prussia recommend that about 10 minutes a day be given to mental arithmetic, and emphasize the importance of rapid calculation, mastery of short methods used in practice, and neatness of written work.

When the size of the classes makes it possible, sections are organized for the different branches of trade. In Munich,[2] for example, there are the following groups: Banking, transportation, insurance, the book trade; groceries, farm products, foodstuffs; textiles and other kinds of manufactured wares; iron and metal products, glass, porcelain, and others.

A school will, as a rule, give special attention to the important industries of the locality.

In some cases there is connection between the arithmetic and the bookkeeping; and in Prussia an effort is made to have the work in arithmetic supplement the commercial science (Handelskunde). The courses are so outlined that the topics discussed each year in these two subjects will be closely related.[3]

The methods of teaching in the commercial continuation schools are very similar to those in the Volksschulen, as most of the teachers in the continuation schools are, or have been, teachers in the Volksschulen.

Textbooks.—From some observations it would appear that rather general use is made of books as sources of problems, and it is said as a rule that these books furnish useful and practical problems.

Preparation of teachers.—"In scarcely any other kind of schools does the teaching force have so many different kinds of preparation as in the commercial schools—philologists, teachers of German, mathematicians, also lawyers, political economists, teachers of special subjects, all grades of teachers from the Volksschulen, merchants, etc., some teaching full time and some teaching part time." [4]

There seems to be no official requirement in Prussia for the preparation of teachers for the commercial continuation schools. In 1910,[5] out of 241 teachers teaching full time in these schools (im

[1] Band IV, Heft 6, p. 25.
[2] Ibid., p. 26.
[3] Ibid., p. 35.
[4] Ibid., p. 69.
[5] Verwaltungsbericht des königlich preussischen Landesgewerbeamts, 1912, p. 81.

Hauptamt), 207 were professional teachers and 34 were engaged in business; and of 2,137 who were teachers part time (im Nebenamt), 1,938 were teachers and 199 were engaged in business.

The official requirement for teachers in commercial schools in Baden [1] is either (*a*) the completion of the seventh year of a secondary school, two years of practice in business, and at least two years' attendance at a school for the preparation of commercial teachers; or (*b*) admission to candidacy to teach in the elementary schools, one year of practice in business, and at least two years' attendance at a school for the preparation of commercial teachers.

In Bavaria [2] the requirements are the completion of a nine-year secondary school, three years of study in a higher institution, at least one of which shall be in a commercial high school, and one year of practice in business. Some practice teaching is required during the three years of study.

COMMERCIAL PREPARATORY SCHOOLS.[3]

Organization and aim.—These schools, which have various names, give courses of one year (in Baden one and one-half years) for students who have not entered business. These are day schools giving from 24 to 33 hours of instruction a week. The students [4] are said to be about the same kind as in the schools for apprentices, and so is the aim of the instruction. The same subject matter may therefore be used, and the only difference arises in the methods of instruction. Since the students in the commercial preparatory schools have had no practical experience, it is recommended that special care be taken to make the presentation clear and concrete.

The entrance requirement is usually the equivalent of the completion of the Volksschule.

There were 40 of these schools in Germany in 1912.

COURSE OF STUDY IN MATHEMATICS.

Arithmetic. (From four to six hours a week.) (The student's ninth school year.) As an example of the work done in arithmetic, the report gives the Dresden plan,[5] which includes computations with integers and fractions, ratio, simple and compound proportion, discount, equation of payments, domestic and foreign exchange, and computation of prices.

HIGHER COMMERCIAL COURSES.[6]

Organization and aim.—The higher commercial courses are usually one-year courses, with approximately 35 hours of instruction a week.

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[1] Verordnungsblatt des grossherzoglichen Oberschulrats (Karlsruhe, 1907), p. 143.
[2] Band IV, Heft 6, p. 70.
[3] Ibid., pp. 39–41.
[4] Ibid., p. 41.
[5] Ibid., pp. 41–45.

The entrance requirement is, as a rule, the possession of the certificate for one-year military service, which means the completion of six years of a secondary school. Hence these students have a better preparation than those in the continuation schools, the mathematical preparation in particular, including algebra through quadratics and plane geometry. The students come, in the main, from well-to-do families, and the object of the instruction is to prepare them to fill responsible commercial positions.

COURSE OF STUDY IN MATHEMATICS.

Arithmetic. (From four to six hours a week, as a rule.) (The student's tenth school year.) The work done in Leipzig[1] is given as an example. It includes computation of prices, percentage, interest, discount, equation of payments, accounts current, stocks, and various methods of exchange.

COMMERCIAL REAL SCHOOLS (HANDELSREALSCHULEN).[2]

Organization.—These are secondary schools, and differ from other Realschulen in that in the last three years special attention is given to commercial subjects, such as bookkeeping, commercial arithmetic, commercial correspondence, and commercial science (Handelskunde). Elective subjects, such as stenography, are offered.

The course is six years in length, and leads to the certificate for one-year military service.

Aim of the instruction.—The aim of these schools is to give a general education, and at the same time some vocational preparation, to those who will later occupy important positions in commercial life.

The most important problem for the mathematical instruction is said[3] to be to develop in the student the ability to apply the knowledge and power he has gained to independent work.

The instruction in mathematics in the Handelsrealschulen differs from that in other Realschulen in giving commercial arithmetic in the last three years, and in giving more attention to commercial applications in the courses in algebra.

COURSE OF STUDY IN MATHEMATICS.

The following course of study[4] is the one outlined by the German society for commercial instruction. It seems to be followed closely by the schools of north Germany, and seems to give a better idea of the general practice than other courses. Class 1 is the highest class in the school.

CLASS 3. (THE STUDENT'S SEVENTH SCHOOL YEAR.)

Arithmetic. (Two hours a week.) "Comprehensive review of material previously studied with applications to commercial problems. Percentage. Interest. Discount and equation of payments."

[1] Band IV, Heft 6, p. 43. [2] Ibid., pp. 45–63. [3] Ibid., p. 53. [4] Ibid., pp. 62, 63.

Algebra. (Four hours a week with geometry.) "The fundamental operations with arithmetical numbers and introduction to positive and negative numbers. Theory of proportion. Equations of the first degree with one unknown."

Plane geometry. "Review of the material studied in Quarta.[1] Theory of parallelograms. Theory of the circle. Theorems concerning the areas of figures (Pythagorean theorem). Computation of the areas of polygons. Problems of construction."

CLASS 2. (THE STUDENT'S EIGHTH SCHOOL YEAR.)

Arithmetic. (Two hours a week.) "Simple exercises in calculating the prices of goods. Review and extension of the work in discount. Accounts current by different methods. Most important facts about reckoning with different moneys. Simple problems in stocks."

Algebra. (Four hours with geometry.) "Theory of powers and roots. Equations of the first degree in one or more unknowns. Simple quadratic equations in one unknown."

Plane geometry. "Theory of similarity. Proportionality of lines in the circle, division into parts having a constant ratio. Regular polygons, perimeter and area of the circle, problems of construction."

CLASS 1. (THE STUDENT'S NINTH SCHOOL YEAR.)

Arithmetic. (Two hours a week.) This course includes problems in stocks and bonds and problems dealing with the buying and selling of goods.

Algebra. (Three hours a week with geometry and trigonometry.) "Theory of logarithms. Practice in computation with logarithms. Quadratic equations. Arithmetical and geometrical series and their application to compound interest and annuities."

Plane geometry. "Continuation of the problems in construction."

Trigonometry. "Elements of trigonometry. Simple problems with triangles."

Solid geometry. "Introduction to the perspective drawing of space figures. The simple solids and the computation of their edges, surfaces, and volumes."

Preparation of teachers.—The preparation of the teachers in these schools is similar to that of the teachers in other secondary schools.

Methods of instruction.—The methods of instruction are similar to those used in other secondary schools.

Examinations.—At the end of the course the students take the examination for the certificate for one-year military service. Besides examinations in other mathematical subjects, there is included for the students from the Handelsrealschulen an examination in commercial arithmetic.

INDUSTRIAL SCHOOLS.

INDUSTRIAL CONTINUATION SCHOOLS.[2]

Organization.—The industrial continuation schools are generally organized and supported by the municipalities. The State has the right of supervision and sometimes furnishes aid.

The aim of these schools is to furnish theoretical instruction to apprentices during their apprenticeship. Many schools have well-

[1] Quarta is class 4, the student's sixth school year.

[2] Die math. Fächer an den gewerblichen Lehranstalten in Deutschland, by Dipl.-Ing. W. Trost. This is Band IV, Heft 5, of the German Reports. Referred to hereafter as Band IV, Heft 5.

equipped shops and supplement the theoretical instruction by shop-work under skilled mechanics. The length of the course is three years as a rule. In Prussia the number of hours of instruction a week is usually six. In southern Germany the number of hours is often more than this, being nine in many schools in Munich, for example.

Attendance in these schools is usually required of apprentices.

Usually when the number justifies it the students are classified for instruction according to trades. Berlin,[1] for example, is divided into 10 districts. The schools of each district are organized to take care of the industrial needs of the locality, and each school has a number of classes for different trades.

Aim of the mathematical instruction.—It is intended to make the mathematical instruction as practical as possible. The courses are planned to give the apprentices the instruction that is applicable to their particular trades.

COURSE OF STUDY IN MATHEMATICS.

The courses of study differ widely in different places and for different trades. Some typical courses are given.

The following work is outlined for machinists in Munich.[2] The outline divides the course in arithmetic into practical, geometrical, and technical arithmetic (bürgerliches, geometrisches, and technisches Rechnen).

FIRST CLASS. (THE STUDENT'S NINTH SCHOOL YEAR.)

Arithmetic. (One hour a week.) The principal topics studied are the earnings of apprentices and laborers, living expenses, savings institutions and the interest paid by them; quadrilaterals, triangles, polygons, circle, ellipse, and the Pythagorean theorem; problems concerning materials and problems from physics, if time permits.

SECOND CLASS. (THE STUDENT'S TENTH SCHOOL YEAR.)

Arithmetic. (One hour a week.) This course takes up problems concerning contracts; prism, pyramid, cylinder, cone; applications to machinery, such as cogwheels, pulleys, and other apparatus in the shop.

THIRD CLASS. (THE STUDENT'S ELEVENTH SCHOOL YEAR.)

Arithmetic. (One hour a week.) This year's work includes problems about contracts, taxes, and insurance; frustums of pyramids and cones, sphere and spherical segment; applications to machinery.

FOURTH YEAR. (THE STUDENT'S TWELFTH SCHOOL YEAR.)

Arithmetic. (One hour a week.) This course includes the computation of surfaces by transforming them approximately into simpler forms; simple determinations of the center of gravity and of the volumes of solids of revolution, and mechanical power and efficiency of machines.

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[1] Band IV, Heft 5, p. 28. [2] Ibid., p. 43.

The next following program[1] is given in the Gewerbeschule, in Carlsruhe, to tinners and plumbers.

FIRST YEAR. (THE STUDENT'S NINTH SCHOOL YEAR.)

Arithmetic. (One hour a week.) This work is divided into industrial arithmetic, which includes computation of the volumes and surfaces of forms met with in the trade, and use of technical tables; and business arithmetic, which takes up percentage, discount and rebates, profit and loss, wages, and cost of goods, including transportation and other expenses.

Applied geometry. (One hour a week.) This course includes a discussion of various solids, their lines, angles, and surfaces; examples of solids arising in practice, as the cylinder from rolling, turning, boring, molding, drawing, and bending together; practical use of instruments, as the straight edge, plumb line, water level, bevel, stencil, micrometer screw, calipers, and compasses; and the elementary geometrical constructions and their applications to problems coming from the trades.

Projection. (Two hours a week.) This course consists mainly of practical applications.

SECOND YEAR. (THE STUDENT'S TENTH SCHOOL YEAR.)

Arithmetic. (One hour a week.) The principal problem taken up in industrial arithmetic are computations of surfaces, with applications to roofs, heating apparatus, and various kinds of material; areas of cross sections; finding one dimension when the volume and two dimensions are given; square root and the use of technical tables; and in business arithmetic the principal topics are interest, moneys, commercial paper, and percentage applied to questions of profit and loss and expense.

Applied geometry. (One-half hour a week.) This course consists mainly of such problems of construction as the construction of ellipses, tangents to circles, dividing a line into parts proportional to given lines, drawing given figures to scale, and practical applications.

THIRD YEAR. (THE STUDENT'S ELEVENTH SCHOOL YEAR.)

Arithmetic. (One-half hour a week.) The principal topics studied are exchange and accounts current; estimates and operating expenses.

There is a course of bookkeeping running through the three years. The time given to it seems to be about one hour a week. A course of one hour a week in applied physics and mechanics is given in the third year.

The following courses are offered in the Gewerbeschule[2] in Frankfort on the Main. This is not a compulsory continuation school, but apprentices with approved preparation may attend this school in satisfaction of their requirement to attend a continuation school during apprenticeship. The courses outlined below are for such apprentices.

INDUSTRIAL ARITHMETIC.

First year. (The student's ninth school year.) This course gives practice in calculation with integers and fractions with applications to problems from industrial life.

Second year. (The student's tenth school year.) A study is made of percentage and its applications, insurance, taxes, partnership, alligation, and examples from statistics.

Third year. (The student's eleventh school year.) This course includes problems from the imperial insurance ordinance, fire, life, and accident insurance; wages; discounts, cost of materials, expenses; computation of surfaces and solids.

A course in algebra or geometry may be substituted for the last course.

[1] Band IV, Heft 5, pp. 46–49. [2] Lehrpläne der städt. Gewerbeschule in Frankfurt am Main, p. 12.

The following courses [1] in mathematics, open to masters, assistants, and apprentices, are also given in the Gewerbeschule in Frankfort on the Main. Each course is given two hours a week.

ALGEBRA.

I. "Introduction to algebra. Addition, subtraction, multiplication."

II. "Negative numbers. Division. Simple equations of the first degree in one unknown. Powers and square root."

III. "Review of powers, extension of the theory of roots. Equations of the first degree in several unknowns. Problems (eingekleidete Aufgaben). Pure quadratics."

IV. "Extension of the material treated in the third course. Quadratic equations. Powers with fractional and negative exponents. Logarithms."

GEOMETRY.

I. "*Plane geometry:* The straight line and the angle. Congruence of surfaces. The most important theorems concerning the triangle, parallelogram, and trapezium."

II. "The most important theorems concerning the circle and constructions involving the circle. Calculation of areas. Proportionality. The Pythagorean theorem and its applications. Problems of construction."

III. "Theorems concerning similar triangles and quadrilaterals. Proportion applied to the circle. Regular polygons. Circumference and area of the circle. *Solid geometry:* Relations of points, lines, and planes in space."

IV. "The most important theorems of solid geometry. Calculation of surfaces and volumes."

TRIGONOMETRY.

I. "The trigonometrical functions. Practice in the use of logarithmic and trigonometrical tables. Calculation of right angled and isosceles triangles, and rectangles. Sine theorem. Cosine theorem. Tangent theorem. Formulas for areas. Calculation of oblique triangles."

II. "Goniometry. Sums and differences of functions. Problems from practical geometry (geodesy, building, construction of machines) as well as from mechanics and physics."

MATHEMATICAL EXERCISES (MATHEMATISCHE ÜBUNGEN).

"Solution of problems from algebra, geometry, trigonometry, mechanics, chosen according to the callings and previous preparation of the students."

Nature of the instruction in mathematics.—The chapter entitled [2] "The method of the mathematical instruction in the industrial continuation schools," in Band IV, Heft 5, of the German reports, gives more attention to recommendations as to how mathematics should be taught than to descriptions of actual conditions, although it gives official directions from different places.

In this chapter emphasis is placed upon the need of mental arithmetic and of much practice in computation, the importance of clear, concrete presentation, and upon the care that should be used in the selection of practical problems.

"The theory must be made clear to the student by simple methods that are adapted to his stage of development.[3] The mathematical experiment must play an important rôle in the continuation school."

[1] Lehrpläne der städt. Gewerbeschule in Frankfurt am Main, p. 9. [2] Band IV, Heft 5, p. 64.
[3] Pp. 64–80.

"In the first place the student must learn to compute." [1] "In every recitation period in arithmetic about 10 minutes should be given to mental arithmetic." It is not intended, however, that only mechanical skill be developed. Emphasis is placed upon clear thinking.

The courses of study outlined above will give an idea of the topics from which problems are taken.

The Berlin program [2] states that the study of algebra should begin with the calculation of surfaces and volumes; that is, algebra should not be begun as an abstract science, but as an extension of arithmetic. The German report recommends that algebra be begun with the study of the equation, and that the fundamental operations be developed by using them in the solution of equations. Algebra is to be considered only as a tool, and is to be developed from that point of view.

Some schools attempt to make the instruction in mathematics more practical by giving courses called *mathematische Übungen*. The outline of such a course, which is offered in the Gewerbeschule in Frankfort on the Main, is given above. The present writer attended a recitation in this course. The students, about a dozen young men, were working on problems in different subjects—algebra, geometry, mechanics. The teacher passed around the room, assisting and correcting. The teaching was well done, and the problems seemed well chosen. As the students were working independently of each other, each had an opportunity to make whatever progress he was able. The exercise seemed to be a very valuable one.

The students in the continuation schools do little or no school work outside of the classroom. Hence all of the solutions of problems, as well as the presentation of theory, must be done in the classroom. The problems are usually worked in notebooks and kept by the students.

Preparation of teachers.[3]—Prussia is only beginning to attempt a solution of the problem of preparing teachers for the industrial continuation schools. In 1913 there was opened in Charlottenburg a school for the training of teachers for the industrial schools. Short courses for teachers and practical mechanics are given in different parts of the Kingdom. These courses usually continue for 14 days, and the most of the time is given to the discussion of methods of instruction.

In 1910 in the industrial continuation schools of Prussia, of 499 teachers who were teaching full time, 362 were professional teachers and 137 were practicing a trade; and of 14,823 who were teaching part time, 12,337 were professional teachers and 2,486 were practicing a trade.

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[1] Band IV, Heft 5, p. 65. [2] Ibid., p. 71. [3] Ibid., pp. 128–140.

South Germany is far ahead in the preparation of teachers for the industrial schools. We will take as an example Baden.

In Baden [1] a position as a teacher in an industrial school can only be obtained after passing a preliminary and a principal examination. In order to be admitted to the preliminary examination, the candidate must have completed a course equivalent to the completion of the seventh year of a secondary school (which means 10 years of schooling); and also the first three semesters of the course for industrial teachers in the Baugewerkeschule in Carlsruhe; to be admitted to the principal examination he must have had one, or in some cases two years of practice in a trade, and have completed the course of three and one-half years for industrial teachers in the Baugewerkeschule in Carlsruhe. The mathematics in this course includes:[2] Algebra through quadratic equations, arithmetical and geometrical series, logarithms, compound interest and annuities, combinations, the binomial theorem, and elements of maxima and minima; plane, solid, descriptive, and practical geometry; trigonometry, including the solution of the general triangle and applications; elements of analytical geometry; geometrical drawing; and mechanics.

In the last two years there is one hour a week given to introduction to the practice of teaching in industrial schools.

Some graduates of the middle technical schools become teachers. There is in Stuttgart a one-year course to prepare such persons for teaching. Another source of teachers for the industrial schools is the technical high school.

Textbooks.—Books are rather generally used as sources for problems. Some of these texts are said to be good and to furnish material that is really vocational. A list of texts is given in Band IV, Heft 5, page 149.

TRADE SCHOOLS FOR THE METAL INDUSTRIES.[3]

These are schools with courses of two or three years. They differ from continuation schools in that they give more theoretical instruction, occupy all of the student's time, and in two or three years give the apprentice the theoretical and practical instruction that a trade demands. "The schools[4] are, in the proper use of the word, schools for apprentices, as we find them in America, where the students get thorough theoretical instruction along with their shop training. They take the place at the same time of the apprenticeship period and the continuation school."

As the students have only the preparation of the Volksschule, the methods of instruction must be simple and concrete as in the continuation school.

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[1] Verordnungsblatt des grossherzoglichen Oberschulrats (1907), p. 147.
[2] Grossherzoglich Badische Baugewerkeschule, Programm (1909–10), pp. 30–36.
[3] Band IV, Heft 5, pp. 101–106.
[4] Ibid., p. 101.

The subject matter of the courses in mathematics is said to be limited to the things that are most essential for the mechanic.

The trade school in Schmalkalden [1] offers the following courses in mathematics. This school gives a course of two years.

Arithmetic. (Two hours a week the first year, one hour a week the second year.) (The student's ninth and tenth school years.) This includes a review of the fundamental operations with integers and fractions and applications to technical problems; units of money, weight, and volume; simple and compound rule of three; percentage, interest, discount, alligation; insurance; commercial paper.

Five hours a week the first year are given to the following subjects:

Algebra. Algebra through quadratics with many problems, particular attention being given to the use of formulas.

Geometry. This includes the elementary notions of plane geometry so far as they are important for the trade instruction or for practice; applications which involve the calculation of surfaces, volumes, weights, and the use of tables.

Trigonometry. This includes the trigonometrical functions and the solution of the right triangle.

A course in elementary mechanics is given three hours a week for one and one-half years.

FACTORY SCHOOLS (WERKSCHULEN).[2]

The Werkschulen are schools maintained by various industries for the purpose of furnishing theoretical and practical instruction to their apprentices and other employees. In 1910 there were 75 such schools, with 7,647 students.

There are many varieties of these schools as to the grade and the nature of the instruction. The most of them belong to a group "in which is given along with general practical education, comprehensive trade instruction."

The courses [3] outlined below are those for the machine makers in the Werkschule of the firm of Ludw. Löwe & Co., in Berlin. The length of the apprenticeship of the machine makers is four years, and there are courses in the Werkschule corresponding to each of these years which the apprentices must attend.

CLASS III.

Arithmetic. (One hour.) This includes a review of the fundamental operations, with applications to cost of materials, wages, savings, and insurance.

Geometry. (One hour.) This deals mainly with theorems concerning triangles and quadrilaterals and with constructions.

CLASS II.

Arithmetic (One hour.) There is a review of decimal fractions and the metric system, and then a study of such topics as interest, wages, expenses, cost and transportation of material, and the size, lighting, heating, and ventilation of the workroom.

Geometry. (One hour.) This course includes theorems concerning the circle, areas of polygons, and the Pythagorean theorem.

Algebra. (One hour.) The fundamental operations.

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[1] Band IV, Heft 5, pp. 102–103. [2] Ibid., pp. 49–64. [3] Ibid., pp. 59, 60.

Geometry. The number of hours is not given. The principal topics are the areas of quadrilaterals, proportion, division of a line into proportional parts, and similar figures.

Algebra. The number of hours is not given. This includes a study of fractions, proportion and its applications, equations of the first degree, powers, square root, irrational and imaginary numbers, equations of the second degree in one unknown, and applications of these topics to practical problems.

SELEKTA.

Arithmetic and algebra. The number of hours is not given. This is a course in practical calculation and the application of formulas.

EVENING AND SUNDAY CLASSES FOR ARTISANS.[1]

The trade schools so far discussed have been for apprentices. The evening and Sunday classes now under discussion are for men who have finished their apprenticeship and wish to extend the lines of instruction started in the continuation school. In the small cities these classes may be connected with the continuation schools, but in the larger cities they will generally be in separate schools or be connected with middle technical schools.

The student can generally choose whatever course he desires, provided he has the necessary preparation. The tuition is usually very small. As to previous schooling, the student will, as a rule, have completed an eight-year course in the Volksschule and a three-year course in the continuation school.

The methods of instruction are similar to those of the continuation school.

The courses outlined below are offered in the Handwerkerschule in Berlin.[2] Each course seems to be one-half a year in length.

Arithmetic. (Four hours a week.) There is a review of common and decimal fractions with applications to business problems and to the calculation of areas and volumes. The more advanced students are given problems from the trades and the use of mathematical tables.

Algebra. (Three successive courses, each two hours a week.) First course: The fundamental operations and easy equations of the first degree. Second course: Equations of the first degree, with one or more unknowns, positive integral powers, square roots. Third course: Powers, roots, equations of the second degree, logarithms.

Geometry. (Three successive courses, each two hours a week.) First course: Plane geometry—triangle, parallelogram, and circle. Second course: Similar polygons and calculation of areas. Third course: Lines and planes; solids, their surfaces and volumes.

Trigonometry. (Two hours a week.) This includes a study of trigonometrical functions and the calculation of the areas of plane figures.

Higher mathematics. (Two hours a week to each course.) First course: Introduction to analytical geometry, differential and integral calculus.

Mathematical exercises. These are courses which take up the solution of problems from mathematics, physics, mechanics, and the mathematical treatment of problems from practice.

[1] Band IV, Heft 5, pp. 106-128. [2] Ibid., pp. 115, 116.

Geometrical drawing. (Four hours a week.) This is an elementary course in this subject.

Projection. (Four hours a week.) This includes the representations of solids in various positions, plane and curved sections of solids, and simple cases of the intersections of solids.

Projective geometry. (Four hours a week.) This is a course in the fundamentals of projective geometry with applications.

MIDDLE TECHNICAL SCHOOLS.[1]

Organization and aim.—There is a great variety of middle technical schools in Germany, and the report states that only certain typical ones are chosen for discussion.

Of the middle technical schools, some are State, some are private, and some are municipal schools.

These schools prepare their students to take such positions as heads of technical industries, officials in technical bureaus and in technical departments of the Government, and industrial engineers.[2] The greater part of the graduates go into private industry.[3]

Tuition is charged in these schools.

The official programs of Prussia, Hamburg, Nuremburg, and Wurzburg provide for a course of four half years; those of Bremen, Carlsruhe, and Stuttgart, five; and that of Strassburg, three.

Entrance requirements.[2]—The entrance requirements are, as a rule, the following: The student must have the certificate for one year military service or have completed a certain class in a secondary school; or have completed the Volksschule and a preparatory class in the middle technical school; or take an entrance examination which includes the elements of mathematics and science and free-hand drawing. In all cases one or two years of practical shopwork is required.

The students [4] who have the certificate for one-year military service usually have as mathematical preparation algebra through quadratic equations, and plane geometry, including similar figures and the circle. Some of them have studied logarithms, plane trigonometry, including the solution of the right triangle, and the calculation of the surfaces and volumes of the simpler solids.

The other group of students,[5] those coming from the Volksschule, have had, as a rule, longer practice in the shop and have had considerable technical arithmetic in the continuation school. The elements of algebra and geometry are taught in some of the Volksschulen, and, as we have seen, there are usually courses in algebra and geometry offered in the continuation schools. In certain middle technical

[1] Der math. Unterricht an den deutschen mittleren Fachschulen der Maschinenindustrie, by Dr. Heinrich Grünbaum, being Band IV, Heft 1 of the German Report. Referred to hereafter as Band IV, Heft 1.
[2] Ibid., p. 2.
[3] Ibid., p. 27.
[4] Ibid., p. 39.
[5] Ibid., p. 40.

schools the students coming from the Volksschulen must go into a preparatory class, and in other schools the students from the Volksschulen and those from the secondary schools are put into separate classes.

Aim of the instruction in mathematics.—Mathematics[1] is regarded throughout as a tool. It is simply to furnish the knowledge necessary for the solution of technical problems. The student must be put into a position to be able to attack and solve the problems that he will meet in his work. The choice of subject matter and of methods of instruction must be determined by this end. It does not follow, however, that the instruction is to be purely formal.

"The highest and most important aim of the teaching of mathematics in the technical school will always be to bring up the student to that power and maturity of thought necessary to recognize the quantitative relations affecting the solution of a given practical problem."[2]

COURSE OF STUDY IN MATHEMATICS.

The course of study of the Prussian Higher Maschinenbauschulen is given as an example.[3] The courses in the other technical Fachschulen are said to agree with this in the main. Out of 170 week-hours of instruction, 18 are given to pure mathematics.

"I. *Algebra:* Powers, roots, logarithms, equations of the first degree in one or more unknowns, exponential equations, equations of the second degree in one or more unknowns, arithmetical and geometrical series, compound interest and annuities, convergent and divergent series, binomial theorem for integral, positive, negative and fractional exponents, exponential and logarithmic series, natural logarithms, maxima and minima, graphical solutions of numerical equations, other methods of approximation."

"II. *Plane geometry:* The most important theorems and constructions of elementary geometry; theory of the circle, calculation of the areas of polygons and the circle, proportions in polygons and in the circle, problems of construction."

"III. *Trigonometry:* The trigonometrical functions and their relations, use of trigonometrical tables, calculations of triangles, quadrilaterals, and regular polygons."

"IV. *Solid geometry:* Lines and planes in space, the trihedral angle, the regular solids, volume and surface of the prism, pyramid, cylinder, cone, sphere, frustums, portions of the sphere, and general methods for the calculation of volumes: Guldin's rule, Simpson's rule, applications to the calculation of volumes and weights."

"V. *Theory of curves:* Introduction to coördinate geometry, the straight line, transformation of coordinates, the equations of the circle, ellipse, and hyperbola; the equations of their tangents and normals, particular properties of the conic sections, conjugate diameters, asymtotes, quadrature of the parabola, ellipse and hyperbola, Simpson's rule, parabolas of higher order, cycloids, curvature of curves."

Courses in mechanics and descriptive geometry are also offered. Certain schools offer courses in the calculus. The following courses[4] are given in the Royal Maschinenbauschulen in Cologne.

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[1] Band IV, Heft 1, p. 33.
[2] Ibid., p. 37.
[3] Ibid., p. 42.
[4] Programm der Königlichen vereinigten Maschinenbauschulen zu Cöln, 1912, pp. 23–26.

Descriptive geometry. (Ten hours a week, the first half year.)
Calculus. (Two hours a week, the second half year.)
Mechanics. (*a*) (Six hours a week, the first half year.); (*b*) (Six hours a week, the second half year); (*c*) (Six hours a week, the third half year.)

Nature of the instruction.—In discussing the teaching of applied mathematics Ott[1] says that there are two methods used, the lecture method, brought from the university, and the heuristic method, which is used in the elementary and secondary schools. The lecture method, pure and simple, is thought not to be a proper method for students with the preparation of those in the middle technical schools. Because of lack of time, and because the greater part of the material in applied mathematics can not be worked out by question and answer, a purely heuristic method can not be used. Hence the method generally used is a combination of lecturing with questions and answers.

Along with the discussion of theory exercises are given, which are solved in the classroom and copied in the notebooks. Not infrequently the class exercise extends through two 45 or 50 minute periods. In many cases the students are in the classroom or the workshop practically all day. Hence there is little opportunity for outside study, and all theory as well as applications must be worked out in the classroom.

The reports recommend that the presentation of theory be made simple and concrete, and be reenforced by many examples. While the students must know and understand the fundamental theorems, it is not thought necessary that all the formal proofs be given. It is recommended that, in applied mathematics at least, use be made of models and other similar aids.

"We have pointed out that there must be developed first of all in the technical school skill and ability to do."[2] This aim determines the choice of subject matter and of method. It is said that in the choice of subject matter the only question to be raised is, "What parts of mathematics are necessary or important for the study of technology, and moreover can be taught in an elementary way suitable to the development of the student?"[3] "What the technologist can not use will be unhesitatingly omitted."[4]

Methods of approximation form an important topic in mathematics, as these often give the best methods for the solution of problems, both because of brevity and because the limited mathematical knowledge of the students makes it impossible to develop a complete theoretical treatment.

[1] Die angewandte Mathematik an den deutschen mittleren Fachschulen der Maschinenindustrie, by Dipl.—Ing. Karl Ott, p. 6. This is Band IV, Heft 2 of the German Report.
[2] Band IV, Heft 1, p. 36.
[3] Ibid., p. 41.
[4] Ibid., p. 35.

Grünbaum[1] criticizes the teaching of algebra for not doing more with the notion of a function, which is of great importance in applied mathematics.

Graphical methods have at present, and have had for a long time, an important place in the teaching of mathematics in the middle technical schools.

The slide rule is much used in some institutions, but apparently not much used in others.

Preparation of teachers.—In speaking of the instruction in applied mathematics, Ott says:[2] "At present the instruction in this field is with increasingly few exceptions in the hands of engineers, and there appears to be no prospect that this condition will be essentially changed."

The proportion of engineers among the teachers of pure mathematics is probably not so great, as Grünbaum says that the question of the course of preparation for the teachers in the technical schools is not settled.[3] At present the instruction in pure mathematics is given by engineers and mathematicians. The first may lack theoretical preparation and good methods of instruction, and the second may be deficient in technical knowledge and experience. There has been some discussion of special instruction in the technical high schools for teachers in the middle technical schools, and also of requiring a year of practice teaching; but present opinion is not in favor of these movements.[4]

Books.—There is no lack of texts in mathematics for the middle technical schools, and they are of various grades of excellence as to presentation of theory and choice of problems.[5] Many of these books show the influence of the secondary schools. In not a few cases the books prepared for the technical schools are merely revisions of books written for the secondary schools, and contain more than is necessary of the purely formal exercises of the old books, as well as large numbers of conventional problems that have no technical applications.

NAVIGATION SCHOOLS.[6]

Organization.—The report on the navigation schools has to do with the schools which prepare pilots and seamen for ocean navigation.

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[1] Band IV, Heft 1, p. 68.
[2] Band IV, Heft 2, p. 24.
[3] Band IV, Heft 1, p. 93.
[4] Ibid., p. 99.
[5] Ibid., pp. 50-65.
[6] Der mathematische Unterricht an den deutschen Navigationsschulen, by Dr. C. Schilling and Dr. H. Meldau. This is Band IV, Heft 4, of the German Reports. Referred to hereafter as Band IV, Heft 4.

When the report was written (1911) there were 18 such schools [1] in Germany, of which 12 were in Prussia, 1 in Oldenburg, 2 in Mecklenburg, and 1 in each of the Hanseatic cities of Hamburg, Bremen, and Lubeck. All of these are State schools, except one in Mecklenburg, which is under the control of the city in which it is located. There are, furthermore, 6 Prussian preparatory navigation schools. There are no private navigation schools, properly speaking, but some candidates do get their preparation for taking the seaman's examination from private sources.

Aim of the schools.—The chief aim of the schools seems to be to prepare for examinations the pilots and seamen who will engage in ocean navigation. The following outline of the requirements for these examinations shows what is, apparently, the extent of the mathematical instruction.

COURSE OF STUDY IN MATHEMATICS.[2]

Algebra. The examination covers the fundamental operations in arithmetic with common and decimal fractions, equations of the first degree, powers, roots, and logarithms.

Plane geometry. This includes the simpler theorems about angles, congruence, similarity, and equality of polygons, the simpler theorems about the circle, simple constructions, and easy computation of areas.

Solid geometry. This includes the simpler theorems about lines and planes in space, and about the sphere and spherical triangles; and the computation of the volumes of prisms, cylinders, and casks, and of the ship's hold by Simpson's rule.

Plane trigonometry. This covers the simplest relations of the trigonometrical functions and the solutions of triangles.

Spherical trigonometry. (Required only of seamen *auf grosser Fahrt.*) This includes the solution of spherical triangles.

Methods of teaching.—The authors of the report would have the geometry [3] made intuitional as far as possible, proving only those important theorems which do not appear at once evident. There should be many applications to nautical problems. The rules for the computation of areas should be taught in the simplest concrete way.

The trigonometry seems to be taught much as in other schools, except that the development is simpler, and special emphasis is placed on the parts which are of the greatest importance to navigation.

"In contrast to the technical schools, drawing and methods of graphical solution are in the background in the navigation schools." [4] The reasons given are that the students in the navigation schools

[1] Band IV, Heft 4, p. 19.
[2] Ibid., pp. 10–13.
[3] Ibid., pp. 35–38.
[4] Ibid., p. 43.

lack previous practice in drawing, and that conditions on board in small, poorly lighted cabins are not favorable to accurate drawing.

It seems that little is done with the notion of a function except in trigonometry. The authors of the report favor a more extended use of this idea, and give some examples the solution of which would be simplified by its use.

Preparation of teachers.—"To-day [1] the question of the preparation of the teachers for the navigation schools has not found a thoroughly satisfactory answer." The problem is to get teachers with the proper academic and practical training; and because of the small number of teachers in navigation schools, there is no prospect that a university or technical school will take up the problem of preparing these teachers.

In the schools outside of Prussia part of the teachers are academically prepared and part are seamen. In general, the first class have had experience of a year or more in navigation and the second have received their mathematical preparation by private study or by attending a university or technical high school.

"In the Prussian navigation schools there are employed at present, besides 3 directors, 29 navigation-school teachers, 17 preparatory-school teachers, and 5 candidates. It is a general principle here that there will be given positions as teachers only former seamen who have passed the examination for pilots and sailors *auf grosser Fahrt*. There are no further requirements as to school preparation." [2]

An examination is generally necessary before a position as teacher in a navigation school can be obtained.

Examinations.—As is mentioned above, the students attend the navigation schools to prepare for the nautical examinations. Since 1870 these examinations have been uniform in the German Empire. They have also, according to the report, become stereotyped, and are criticized by many teachers in the navigation schools, who say that before 1870 the schools were interested in teaching the students something, but now are forced to prepare the students to pass the examinations. "If, however, this criticism can not be truly denied, yet there is no doubt that on the whole the introduction of the new system of examinations has a good influence on the preparation of the German seamen." [3]

Books.—In many schools no books are used. In some schools *Aufgabensammlungen* or *Leitfaden* that are specially prepared for the navigation schools are used.

Modern tendencies.—There is some discussion of the question of requiring attendance of the navigation schools from those who take the nautical examinations.

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[1] Band IV, Heft 4, p. 49. [2] Ibid., p. 55. [3] Ibid., p. 17.

The authors of the report wish a change in the examinations, so that they will not be so stereotyped, and so that they will require more thorough preparation on the part of the candidates.

Modern improvements in ship construction and equipment, and the use of modern instruments also, require changes in the school instruction.

GREAT BRITAIN.

Some of the most noteworthy work that has been done in recent years in the improvement of the teaching of mathematics, especially in technical schools, has been done in England. The effect of this work has been felt in many other countries. The reports of the British Subcommission do not, however, give a sufficiently detailed account of the teaching of mathematics in the vocational schools to make it possible to discuss the subject here for Great Britain as is done for other countries. But it has been thought useful to give such an account of present tendencies as is furnished by the "Memorandum on the Teaching of Engineering in Evening Technical Schools," published by the board of education.

This memorandum does not attempt to give an account of present conditions. Its aim may be seen in the following extract from the prefatory note.[1]

> The following memorandum has been drawn up with the object of furnishing suggestions to teachers and organizers of schools which provide evening classes in mechanical and electrical engineering. It is not in the least intended to lay down a scheme of instruction suitable for universal application; it is obviously necessary and desirable that there should be great variety both in methods of teaching and in organization to meet the needs of different types of students and the varying industrial conditions of different areas. Further, the last thing which the board desires in making these or any other suggestions is to fetter the liberty of the teachers or discourage individuality in teaching. The object of the memorandum is simply to assist teachers and organizers to work out for themselves the schemes of instruction best suited to the conditions of their classes.
>
> The memorandum has been prepared by a number of the board's inspectors, many of whom have had recent experience as teachers.
>
> *Organization.*—A complete curriculum [2] of evening instruction falls naturally into three stages, which may for administrative purposes be classified as follows: (*a*) The junior course; (*b*) the senior course; (*c*) the advanced course.

The junior course usually occupies two years and is intended for boys who leave the public elementary schools at the age of 14. It gives a general preparation for technical courses of all types, in particular for the senior course, and comprises instruction in mathematics, drawing, science, and English.

It is assumed that all students entering a senior course have had the equivalent of the junior course. The senior course normally

[1] P. 4. All references are to the above memorandum. [2] P. 6.

occupies a period of not less than three years, with attendance of three evenings a week.

The advanced course includes work of a more advanced and specialized character and normally extends over at least two years.

For purposes of administration it is convenient to speak of a major course and a minor course. A major course will usually extend over not less than four years and will include senior and advanced courses. A minor course will probably be completed in two or three years, so that it will often consist of a senior course only.

"The present [1] memorandum deals in detail with the engineering courses which are subsequent to the junior course."

Nature of the instruction.—The minor course is intended primarily to help workers to a more intelligent understanding of their craft. The practical side of the instruction is the important one. It is desirable, but not necessary, that the teachers have technical training.

The major course is intended for persons who expect to become foremen, designers, heads of departments, and the like. "Its [2] curriculum will center around the scientific basis of engineering and will include the training in mathematics and drawing which is necessary for sound progress." "Teachers in the advanced course will be specialists in one or other of the branches into which engineering is divided and will probably confine themselves to their special subjects."

The work of the first three years [subsequent to the junior course] may be planned on lines which are generally similar for each year, while the later treatment will usually be on more specialized lines.

In each of the earlier years the work should be organized to include the treatment of a number of branches or aspects of the subjects, which may be roughly classified as follows: (i) Mensuration; (ii) manipulation of algebraic expressions, evaluation of formulæ and solution of equations; (iii) the idea of functionality or the dependence of one quantity upon another, and the use of graphs; (iv) trigonometry; (v) variation of functions leading up to the calculus.

The aim of teaching should be to develop a habit of dealing quantitatively with material objects and physical phenomena, and of expressing the results symbolically and in graphical form; also to impart the power to interpret the relationship between quantities when so expressed.

COURSE OF STUDY IN MATHEMATICS.[3]

SENIOR COURSE. FIRST YEAR. (THE STUDENT'S ELEVENTH SCHOOL YEAR.)

(*a*) *Arithmetic and mensuration.* Review of the work of the junior course. Rules for areas and volumes. Checks.

(*b*) *Logarithms.* Use of common logarithms.

(*c*) *Measurement of angles.* Notion of an angle. Construction of angles with ruler and compasses. Radian. Sine, cosine, and tangent defined and computed from measurements. Variation and graphs of these functions from 0° to 90°. Solutions of right triangles.

(*d*) *Graphs.* Finding the areas of irregular figures by the use of the midordinate rules. Graphs of statistics and of familiar functions.

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[1] P. 9 [2] P. 8. [3] Pp. 30–35.

(*e*) *Algebra.* Solution of simple equations in one or two unknowns. Factoring. Simple examples in indices, and much practice in simplifying expressions and in solving formulas for any letter involved.

(*f*) *Slope of a curve.* The notion of the slope of a curve and its measurement.

(*g*) *Practical work.* The use of rulers, scales, micrometers, calipers, planimeter, spring balances, and weighing scales. Much measuring of the usual geometrical solids and of such objects as washers, rings, plates, disks, wires, bars, rods, pipes, and short lengths of standard rolled sections. Drawing to scale.

SENIOR COURSE. SECOND YEAR. (THE STUDENT'S TWELFTH SCHOOL YEAR.)

(*a*) *Mensuration.* More advanced work. Irregular plane and solid figures.

(*b*) *Slide rule.*

(*c*) *Logarithms.*

(*d*) *Trigonometry.* Review. Solution of triangles by reducing them to sums or differences of right triangles. Projections of lines and surfaces.

(*e*) *Vectors.* Introduction, and simple examples in addition and subtraction.

(*f*) *Algebra.* Review and extension of the work of the previous year. Quadratic equations. Simple exercises in the graphical solution of equations.

(*g*) *Graphs.* "More practice in plotting graphs should be given. This should lead to exercises involving interpolation, the calculation of average rates of increase, the determination of areas, maxima and minima values, the finding of probable laws connecting varying quantities, and the solution of equations."

(*h*) *Calculus.* The notion of a derivative with simple examples.

ADVANCED COURSE. FIRST YEAR. (THE STUDENT'S THIRTEENTH SCHOOL YEAR.)

(*a*) *Mensuration.* "More advanced work may be taken in mensuration, including the theorems of Guldinus, and a number of exercises on the areas and volumes should be given."

(*b*) *Trigonometry.* Trigonometric functions for any angle, the most useful formulas, and the solution of triangles.

(*c*) *Algebra.* "The work in algebra may include further exercises in the solution of quadratic equations, and the roots of such equations; further practice in manipulating expressions containing indices; the simplification of fractional expressions; products of binomial expressions, including the consideration of approximations."

(*d*) *Graphs.* Plotting of certain useful types of curves such as $pv^n = constant$, $y = ae^{bx}$, $y = a \sin(x+c)$, $y = a \sin(x+c) + d \sin(x+e)$.

(*e*) *Calculus.* The notion of a derivative, and of an indefinite and a definite integral, and simple applications. Much care is to be taken to make the ideas clear.

ADVANCED COURSE. SECOND YEAR. (THE STUDENT'S FOURTEENTH SCHOOL YEAR.)

(*a*) *General.* The greater part of the time may be spent on the calculus and its applications, and some time on exercises in the binomial theorem and with trigonometric formulas.

(*b*) *Differential calculus.* "Differential coefficients for standard functions; differentiation of products and quotients of functions and of the functions of a function; partial differentiation; Taylor's and Maclaurin's theorems; exponential, logarithmic, and Fourier's series and their applications; curvature; construction of curves from law of slope."

(*c*) *Integral calculus.* "Standard integrals; integration by parts and by substitution; graphical methods of integration; simple differential equations."

(*d*) *Engineering applications.* "It is recommended that the teacher of mathematics cooperate with the teacher of engineering and that applications of the calculus be made to such topics as areas, volumes, velocities, accelerations, vibrations, centers of pressure, centers of gravity, moments of inertia, theory of beams, thermodynamics, and problems in electrical engineering."

(*e*) *Plane analytical geometry.* If time permits, it is recommended that the equations of the conic sections be studied.

HOLLAND.

COMMERCIAL AND INDUSTRIAL SCHOOLS.

The lower and middle vocational schools discussed in the report from Holland [1] are the "Burgeravondscholen," the vocational schools (écoles professionelles), schools of design (écoles de dessin), technical schools, and vocational schools for girls. The first three kinds have the same course of study in mathematics and can be considered together. There is little or no instruction in mathematics in the schools for girls.

BURGERAVONDSCHOLEN, SCHOOLS OF DESIGN, VOCATIONAL SCHOOLS, AND TECHNICAL SCHOOLS.

Organization.—The Burgeravondscholen are evening schools organized by the communes, but in some cases partially supported and supervised by the Government. Their aim is to give theoretical instruction to persons going into commerce and industry. The course is from two to four years in length, with from 6 to 12 or 15 hours of instruction a week.

Schedule of hours per week of a Burgeravondschole of four years.

Classes.	Geometrical drawing.	Free-hand drawing.	Technical drawing.	Mathematics.	Physics.	Mechanics.	Dutch.
First	5	3	.....	4	1	.....	2
Second	.....	2	6	4	(1)		2
Third	.....	2	7	3	(2)		1
Fourth	.....	2	8	2	(2)		1

"For the most part there are no examinations for admission to these schools.[2] A declaration by the head of the primary school that the student has followed the primary instruction with success is sufficient." This statement applies also to the schools of design and to the vocational schools.

The schools of design are "in the main the same as the Burgeravondscholen;[3] the course of study is from three to five years in length and from 8 to 15 hours of instruction are given a week." The most of these schools have been founded by private societies, but in some communes there are schools of this kind which receive some support from the State or the Province.

The vocational and technical schools give both theoretical and practical instruction. The most of these schools give a course of three years with from 40 to 44 hours of instruction a week. These

[1] Rapport sur l'Enseignement mathématique dans les Pays-Bas, publié par la Sous-Commission nationale, pp. 11–29. Referred to hereafter as Rapport.

[2] Ibid., p. 20.

[3] Ibid., p. 14.

schools are in session throughout the year, except five or six weeks. The following schedule of hours a week is given.[1]

Schedule of hours per week of vocational and technical schools.

Classes.	Practice.	Geometrical and technical drawing.	Freehand drawing.	Mathematics.	Dutch.	Physics and mechanics.
First	24	9	4	4	2	1
Second	26	8	3	3	2	2
Third	27	8	3	3	1	2

COURSE OF STUDY IN MATHEMATICS.[2]

The following is the work usually given in the vocational schools and in the Burgeravondscholen:

Arithmetic. (First year.) The subjects studied include the fundamental operations, the metric system, foreign weights and measures, ratio and proportion, percentage, square root, and applications.

Algebra. (First year.) Fundamental operations.

Second year. Review of the fundamental operations and equations of the first degree in one unknown.

Third year. Linear equations in two unknowns and the solution of problems.

Geometry. (First year.) Rectilinear figures, areas, similar figures, and problems.

Second year. The circle, regular polygons, the ellipse; planes, and regular polyhedrons.

Third year. Prisms, pyramids, cylinders, cones, sphere; calculation of surfaces and volumes.

Mechanics. (Third year.) Elementary mechanics.

Descriptive geometry. "In the teaching of that branch we make as many applications as possible, relating them to the specialty of the student."[3] Many of the purely mathematical examples of the books are discarded and practical applications are substituted.

Methods of instruction.—The above outline of the work in mathematics shows no distinctly vocational material. The examination questions given in the report as examples of those given at the conclusion of the course in the Burgeravondscholen are of the usual textbook type.

In some schools models are used in the instruction. As most of the teachers of mathematics come from the elementary schools, the methods of instruction of those schools are probably used in the vocational schools. There appears to be a tendency to make the instruction more practical, and, in particular, to unify the theoretical development of a topic and its vocational applications.

Preparation of teachers.—Some of the teachers are engineers, but the most of them are elementary school teachers.

[1] Rapport, p. 15. [2] Ibid., pp. 18, 19. [3] Ibid., p. 19.

MIDDLE TECHNICAL INSTRUCTION.

"By middle technical instruction is meant that which is necessary for those who are to be the intermediaries between the employer, the engineer, etc., and the worker."[1] Instruction of this kind in some trades is given in certain Burgeravondscholen. There is but one school devoted entirely to middle technical instruction, the middle technical school of Amsterdam, which at the time the report was written was being reorganized. The courses in this school are specially for machinists, electricians, and in general, for those who are to be engaged in the metal industries. No course of study is given for this school.

It is said that a middle school for architects will soon be opened in Utrecht.

NAVIGATION SCHOOLS.[2]

Three such schools are named, two in Amsterdam and one in Rotterdam. The entrance requirements for one school are the same as for the fourth year, and for the other two the same as for the second year of the middle school, thus requiring respectively nine and seven years of previous schooling. The age of entrance is from 14 to 17 years, except that in the case of candidates for positions as pilots there is no age limit, and they need have only an elementary school education (six years of schooling).

Aim of the instruction.—The aim of these schools is to educate captains, officers, and pilots for the merchant marine, and masters and pilots of fishing vessels. "The teaching of mathematics has a tendency essentially practical."[3]

COURSE OF STUDY IN MATHEMATICS.[4]

Thirteen hours a week are given to mathematics and the sciences of navigation, and two hours a week to physics in each of the two years.

FIRST YEAR.

Plane trigonometry. This course includes the elements of plane trigonometry with some applications to practical geometrical problems.

Solid geometry. Enough of solid geometry is studied to enable the student to compute volumes, and to understand spherical trigonometry and the coördinate systems of astronomy.

Spherical trigonometry. This course includes the solution of spherical triangles and applications to problems of navigation.

Analytical geometry. The elementary properties of conics are studied.

Navigation. In this course are taken up the usual problems of navigation, such as calculation of direction and distance, determination of the place from observation, and navigation along a great circle.

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[1] Rapport, p. 16. [2] Ibid., pp. 33–37. [3] Ibid., p. 35. [4] Ibid., pp. 34, 35.

SECOND YEAR.

Astronomy and navigation. This course includes the following: Determination of time and place at sea; influence of errors of observation; instruments of navigation; compass variations; tides.

Examinations.—The examinations for pilots for ocean navigation cover about the material given above in arithmetic, algebra, geometry, trigonometry, astronomy, and navigation.

SCHOOLS FOR FISHERMEN.

There are schools for fishermen which are more elementary than the schools of navigation just mentioned. "As to the schools for fishermen, they are of very recent date.[1] The students in these schools have generally only the education of the elementary schools, which is such that the instruction in mathematics and navigation must be very simple."

HUNGARY.

HIGHER COMMERCIAL SCHOOLS.[2]

Organization and aim.—In the year 1911–12 there were 51 of these schools, of which 20 were supported by the State, 11 by societies, 15 by cities, 3 by religious denominations, and 2 by private parties. Five of these schools are for girls. Students are admitted if they have completed the fourth year of a Gymnasium, Realschule, or a Bürgerschule, and are 14 or 15 years of age. The course is 3 years in length. The completion of the course in a higher commercial school admits the student to a maturity examination, the certificate from which gives the right of one-year volunteer military service.

The particular problem of these schools is said to be the training and education of able tradesmen and commercial officials.

COURSE OF STUDY IN MATHEMATICS.

The following is the schedule of hours a week:

Hours per week in mathematics in higher commercial schools.

Years.	Commercial arithmetic.	Mathematics.
First year (the student's ninth school year)	4	2
Second year (the student's tenth school year)	3	2
Third year (the student's eleventh school year)	4	2

Arithmetic. The subject matter is said to be carefully chosen and to be practical. No outline of the subject matter is given.

[1] Rapport, p. 37.

[2] Der mathematische Unterricht an den Handelsschulen, by Max Havas and Samuel Bogyó, pp. 3–7.

Algebra. The principal topics studied are equations of the first degree in one or two unknowns, equations of the second degree, arithmetical and geometrical series, combinations, probability, compound interest, annuities, loans, lotteries, and the fundamentals of life insurance.

Geometry. Enough of geometry is taught so that the students can compute the surfaces and the volumes of the simple solids.

Preparation of teachers.—Dissatisfaction is expressed with regard to the teachers. Teachers of other subjects are often required to teach the commercial arithmetic.

The preparation of the regular professors in the higher commercial schools is usually made in a school for commercial school professors (Handelsschulprofessoren-Bildungsanstalt) which is closely connected with the commercial academy in Budapest.[1]

Most of the students enter this school for commercial teachers with the maturity certificate from a higher commercial school and take a course of four years. Then follow examinations and one year of practice teaching before a teacher's certificate is granted.

Recommendations for improving the instruction.—It is said that the work in mathematics can not be done satisfactorily in the time now given to it, and it is recommended that the course be extended to four years. If this extension is made, it is thought that the results of the work in mathematics will be much improved.

INDUSTRIAL AND TRADE SCHOOLS.[2]

Organization.—The Hungarian report discusses two kinds of industrial schools, the *höhere Gewerbeschulen*, which will be called here "higher industrial schools," and the *gewerbliche Fachschulen*, which will be called "trade schools." When the report was written (1912) there were in Hungary 4 higher industrial schools and 21 trade schools. These schools are under the ministry of commerce.

These schools have similar aims. They have the problem of preparing skilled workmen and minor official for technical undertakings. The principal difference is that the graduates of the higher schools have a better social position and become, in the main, technical officials, while the graduates of the trade schools find positions as foremen and master workmen.

Entrance requirements.—In order to enter the higher industrial school, the student must have finished the fourth class of a Mittleschule or of a Bürgerschule and have had one year's practice in his chosen trade. The students are in general 16 years old when they enter the school.

In order to enter the trade school, the student must be 13 years of age, and have completed the sixth year of a Volksschule or the second year of a Mittelschule or of a Bürgerschule.

[1] Der mathematische Unterricht an den Handelsschulen, by Max Havas and Samuel Bogyó, pp. 12, 13.

[2] Der math. Unterricht an den höheren Gewerbeschulen und gewerblichen Fachschulen, by Daniel Arany.

COURSE OF STUDY IN MATHEMATICS IN THE HIGHER INDUSTRIAL SCHOOLS.

The following program is in force in the two schools in Budapest, and the differences between it and the programs in the other schools are noted.

Algebra. The course includes the fundamental operations, equations of the first degree in one or more unknowns, powers and roots, logarithms, equations of the second degree in one unknown, arithmetical and geometrical series, compound interest and annuities.

In both the other schools exponential equations are included; and the program of the school in Szeged contains also the binomial theorem, equations of the second degree in more than one unknown, and approximate solutions of equations of higher degree.

Geometry. The principal topics in plane geometry are the angle, triangles, the principal properties of quadrilaterals, polygons, the circle, similar figures, and the computation of the surfaces of polygons and the circle.

The work in solid geometry includes the principal properties and the computation of the surfaces and volumes of the prism, pyramid, cylinder, cone, and sphere.

Trigonometry. This course gives the fundamentals of goniometry and the solution of triangles.

Constructive and descriptive geometry. This course begins with a review of the elementary constructions of plane geometry and goes so far as to include the representation of the prism, pyramid, cylinder, cone, and sphere in different positions by orthogonal projection and parallel perspective, and their development and plane sections. The most important cases of the intersections of solids are taken up.

COURSE OF STUDY IN MATHEMATICS IN THE TRADE SCHOOLS.

The official course of study for the trade schools contains the following work in mathematics.

The following work is outlined for all the trade schools except those for watchmakers and certain other highly skilled mechanicians (*Feinmechaniker*):

First year. (The student's seventh school year.) (Two hours a week.) The course includes the fundamental operations with integers, common fractions, decimal fractions, factoring, squares and square root, the metric system, and the finding of areas and volumes.

Second year. (The student's eighth school year.) (Two hours a week.) This year the students study ratio, proportion and its use in the solution of problems, percentage and its applications, partnership, alligation, and exchange.

Third year. (The student's ninth school year.) (One hour a week.) This is a course in commercial arithmetic, including problems from industrial life, exchange, discount, revenues, stocks, and bonds.

The watchmakers and *Feinmechaniker* have the following courses:

First year. (The student's seventh school year.) (Four hours a week.) *Algebra* and *geometry.* The course in algebra, which also includes a review of arithmetic, involves a review of the fundamental operations with common and decimal fractions, powers and roots, equations of the first degree in one or more unknowns, simple and compound proportion, and the solution of practical problems.

The principal topics studied in geometry are the measurement of lines and angles, the congruency and similarity of triangles, quadrilaterals, polygons, the circle, the ellipse, and spirals.

Second year. (The student's eighth school year.) (Two hours a week.) *Algebra* and *geometry*. The subjects taken up in algebra are logarithms and their applications to problems in watchmaking, and the solution of practical problems.

The course in geometry includes a study of the cube, prism, cylinder, pyramid, cone, and sphere, and the computation of their surfaces and volumes. Some work in plane trigonometry is given in this course.

Third year. (The student's ninth school year.) (Two hours a week.) *Arithmetic, algebra*, and *geometry*. Some simple commercial arithmetic is given, including percentage, interest, and exchange.

The topics studied in algebra are equations of the first and second degree in one and two unknowns, and simple cases of the binomial theorem.

The applications of trigonometry to watchmaking are discussed.

There is a course in geometrical drawing and descriptive geometry in the first year in all the trade schools. The time given to this course is three hours a week in the schools for the textile industries and six hours a week in all other schools. A course of two hours a week in these subjects is given in the second year in the schools for the building trades.

Methods of instruction.—The time given to a subject is divided officially into lecture hours and examination hours. During the first the professor lectures without interruption, and in the last he gives tests to see if the students have mastered the lectures. There are, furthermore, certain review hours in mathematics, which are devoted to the solution of practical problems.

Examinations.—There are reviews of a month in length at the end of each semester. These, with the examination hours mentioned above, include everything that is given in the way of examinations.

Preparation of teachers.—There is no special preparation for teachers in industrial schools. An engineer's diploma is required of the teachers of most subjects. Mathematics may be taught either by engineers or those prepared to teach in the secondary schools.

ITALY.

INDUSTRIAL SCHOOLS.

The part of the Report [1] of the Italian Subcommission that deals with the industrial and commercial schools gives a brief account of the organization of these schools, but gives no outlines of the courses of study in mathematics except in the case of the commercial schools.

The following table [2] gives the kinds of commercial and industrial schools and the number of each. These statistics are for the school year 1908:

Schools of agriculture:	Number.
Practical	28
Special	7
Higher	3

[1] Commissione internazionale dell'insegnamento matematico, Atti della Sottocommissione italiana: L'Insegnamento della matematica nelle scuole industriali professionali e commerciali, by G. Lazzeri. Referred to hereafter as Lazzeri.

[2] Ibid., p. 6.

	Number.
Schools of mining	3
Industrial schools:	
Arts and crafts	47
Professional	19
Industrial schools proper	19
Schools of industrial art:	
Of design	112
Intermediate	87
Higher	7
Commercial schools:	
Lower	34
Intermediate	12
Higher	5
Vocational schools for women	29

All of the above schools are under the control of the minister of agriculture, industry, and commerce. These schools are of many types. Full freedom is given to the development of these schools, so that they may best meet the needs of the communities in which they are located.

SCHOOLS OF AGRICULTURE.[1]

The practical schools of agriculture give practical instruction in farming. The students prepare for such positions as that of vine-dresser.

The condition for admission is the possession of the certificate of maturity from the elementary school or passing an examination which covers the same ground. It should be said that this certificate of maturity, to which references are frequently made in this report, may be obtained at the end of the fourth year of the elementary school by passing an examination.

A certificate is granted at the completion of the course in the practical schools.

The special schools of agriculture have a lower and a higher course. The admission to the lower course is the same as to the practical schools. The certificate of the lower course admits to the higher course.

The graduates of the lower course obtain positions as skilled laborers, and those of the higher course as superintendents.

The higher schools of agriculture require for admission the diploma of a secondary school, or equivalent preparation. The aim of these schools is to give the students such knowledge of agriculture as will enable them to take charge of large farms, to teach agriculture, and to promote agricultural research. At the end of the regular course the degree of doctor of agriculture is granted.

Course of study in mathematics.—The instruction in mathematics in the first two classes of schools is limited to arithmetic and elementary

[1] Lazzeri, pp. 7, 8.

geometry. In the higher schools the work in mathematics is extended to some further applications in mechanics and practical geometry.

SCHOOLS OF MINING.[1]

The admission is by examination. The aim is to train mining experts and head mechanics.

The course in mathematics includes algebra, elementary geometry, descriptive geometry, and in some schools theoretical and applied mechanics.

A diploma is given at the end of the course.

INDUSTRIAL SCHOOLS.[2]

The schools of arts and crafts require for admission the certificate of maturity of the elementary school. Their aim is to prepare skilled artisans. They give a diploma which certifies to the ability of the graduate in certain arts and crafts. This certificate sometimes gives admission to the higher courses in the industrial schools.

"The professional schools belong to the preceding type, but are superior, as they furnish more complete training, both theoretical and practical."

The industrial schools, "properly so called," are of a higher grade than the preceding. They require for admission to the superior course the equivalent of the diploma of the schools of arts and crafts. They correspond, apparently, to the middle technical schools of other countries.

SCHOOLS OF INDUSTRIAL ART.[3]

The instruction in the schools of design seems to be limited to drawing and art. The lessons are given in the evenings and on holidays.

The intermediate schools are of a higher grade than the preceding. Some of them are said to be devoted to particular industries, as coral cutting. Some instruction in elementary mathematics is given.

The higher schools aim to turn out skillful artisans who will devote themselves to such trades as watchmaking, china making, the graphic arts, carving, and the like. Something of the theory of shades and shadows and of the theory of perspective is taught.

VOCATIONAL SCHOOLS FOR WOMEN.

The vocational schools for women require for admission the certificate of maturity of the elementary school. These schools prepare their students to take various positions, as cooks, nurses, designers, and also such positions as clerks, cashiers, and in the mail and telegraph service.

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[1] Lasseri, p. 8. [2] Ibid., pp. 8, 9. [3] Ibid., pp. 9, 10.

The course in mathematics includes arithmetic and the elements of geometry.

COMMERCIAL SCHOOLS.[1]

In order to enter the lower commercial schools the student must possess the certificate of maturity of the elementary school. The aim of these schools is to train clerks and accountants. The instruction in mathematics is limited to arithmetic, elementary algebra, and intuitional geometry.

The requirement for admission to the intermediate commercial schools is the possession of a diploma of the technical school, or one from a gymnasium or a lower school of commerce, or the passing of an examination.

The aim of these schools is to prepare men to take responsible commercial positions. A diploma is granted at the end of the course.

The study of mathematics extends through two, three, or four years according to the school. The instruction is planned to prepare the student for the study of the mathematics of finance.

As an example of the work done in mathematics in the intermediate commercial schools the report gives the following, which is offered in the R. Scuola Media di studi applicati al commercio of Florence. This school has a course of four years.

First year. This year's work includes arithmetic, elementary algebra, and the elements of geometery.

Second year. This course is called *matematica finanziaria*, and includes arithmetical and geometrical progressions, logarithms, compound interest and annuities, amortization, elements of the theory of probability, and insurance.

The higher commercial schools are higher institutions of learning, and grant diplomas of the same grade as the universities.

JAPAN.

COMMERCIAL SCHOOLS AND COLLEGES.

COMMERCIAL SCHOOLS.

The commercial schools are State schools. There are two classes of them, class A and class B. The following discussion applies to both classes except as otherwise indicated.

Organization.—Class B. To enter the schools the student must be at least 12 years of age and be a graduate of an elementary school. The average age of the students in the first class is 13. The course is three years or less.

Class A. To enter a school of class A the student must be at least 14 years of age and be a graduate of a higher elementary school, or

[1] Lazzeri, pp. 10, 11.

have equivalent preparation. The average age of entrance is 15. The following courses of study are offered:

Preparatory course 1 year; principal course 3 years.
Preparatory course 2 years; principal course 3 years.
Preparatory course 2 years; principal course 4 years.
Preparatory course 0 year; principal course 5 years.

The school year is divided into three terms.

Aim of instruction.—The aim of instruction "is the training in the practical use of commercial calculations, and the development of mathematical mental power." [1]

COURSE OF STUDY IN MATHEMATICS.[2]

Class B. Arithmetic. This course includes mental, soroban, and written calculation, compound numbers, fractions, proportion, percentage, and commercial calculations. Arithmetic is usually given four or five hours a week throughout the course.

The following courses are given only in schools of class A:

Arithmetic. (Usually given in the preparatory course.) The principal topics are integers and decimals, compound numbers, measures and multiples, fractions, ratio and proportion, percentage, square and cube root, and mensuration.

Commercial arithmetic. This includes rapid calculation, money, systems of measures, various applications of percentage, exchange, invoices, accounts, and annuities.

Algebra. Algebra through quadratics, square and cube root, proportion, progressions, logarithms.

Geometry. A study is made of straight lines, rectilinear figures, circles, proportion, and solids.

In some schools there is less algebra and geometry than is outlined, and in some schools there is no geometry.

Methods of instruction.[3]—The methods of instruction are said to be similar to those of the middle schools, but special emphasis is placed on mental, soroban,[4] and written calculations, and upon applications. There is general use of geometrical models, weighing machines, and of Japanese, English, and metric measures. Textbooks are used.

Examinations.[5]—Besides the annual examination there are, in some schools, term examinations and tests at irregular intervals. The mark for the year depends upon the examinations and the daily marks.

Preparation of teachers.—There is a commercial teachers' training institute in connection with the Tokyo Commercial College. The course there is four years. The course of study in mathematics is given below.

[1] The Teaching of Mathematics in Japan: Art. XI, The Teaching of Mathematics in Commercial Schools and Colleges, p. 12. Referred to hereafter as Art. XI.
[2] Ibid., pp. 15-17. The courses are not outlined by years.
[3] Art. XI, p. 18.
[4] The soroban is a kind of abacus.
[5] Ibid., p. 18.

COMMERCIAL COLLEGES.

Organization.—Six of these commercial colleges are private, five Government, and one municipal (Osaka). In order to enter these schools the students must be 17 years of age and be graduates of a middle school or of a commercial school of class A or have equivalent scholarship. Admission is either by examination or by fulfilling the conditions for free admission in the different colleges. The average age of students in the first-year class is 20. Two of the Government colleges have courses of four years. The others have courses of three years.

Aim of instruction.—Besides a general educational aim, the "principal aim of mathematical instruction is to impart knowledge of the principles and methods of the calculations required in the different branches of commerce, and to drill the students in practical accounting." [1]

COURSE OF STUDY IN MATHEMATICS.[2]

This is the program of the Tokyo Commercial College, which has a course of four years. After the second year the course is given in English.

First year. (The student's twelfth school year.[3]) (Three hours a week.) Mental and soroban calculation, foreign weights, measures, and moneys, percentage, interest, logarithms, summation of series, probability, graphs of functions.

Second year. (The student's thirteenth school year.) (Two hours a week.) Business arithmetic, including short cuts and approximations, percentage, interest, discount, equation of payments, current accounts, alligation, taxes, freight, customs, and similar topics.

Third year. (The student's fourteenth school year.) (Three hours a week.) Monetary standards and values, exchange in its various phases, fire and marine insurance, foreign trade.

Fourth year. (The student's fifteenth school year.) (One hour a week.) Mathematics applied to financial, actuarial, statistical, and economical problems, such as annuities, mortality tables, theory of errors, demand and supply curves.

Methods of instruction.—As the above program shows, the subject matter of the mathematical instruction is vocational. The instruction is given by means of "lecture,[4] practice in calculation, solution of problems and making out of business forms and documents." Books are not generally used. Formulas, problems, and summaries are sometimes printed or mimeographed.

Examinations.[4]—The year's mark depends upon the term examinations and the annual examination. The latter is given at the end of each year in each subject. There is generally no final examination.

Preparation of teachers.—There is no special preparation.

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[1] Art. XI, p. 4.
[2] Ibid., pp. 4–9.
[3] In many cases the thirteenth or fourteenth school year.
[4] Art. XI, p. 9.

TECHNICAL SCHOOLS AND COLLEGES.[1]

TECHNICAL SCHOOLS OF MIDDLE GRADE.

Organization.—The technical schools of middle grade are State schools. The entrance requirements are the completion of the first six years of the elementary school. The average age of the first-year students is 15 years. The courses are of three or four years, with sometimes a preparatory course of two years.

Aim of instruction.—The aim "is to enable the students to understand the lectures on engineering and other like subjects, and also to train them in practical applications." [2]

COURSE OF STUDY IN MATHEMATICS.

No program is given, only the following schedule of hours.[3]

Schedule of hours.

Studies.	First year.	Second year.	Third year.	Fourth year.	Total.
Arithmetic	145	0	0	0	145
Algebra	78	156	39	0	273
Geometry	50	78	39	0	167
Trigonometry	0	0	78	0	78

Nature of the instruction.—An excellent list of topics for applied problems is given at the beginning of the report. Otherwise there is nothing stated as to how far the work is really vocational. It is recommended that textbooks be used and that special texts in mathematics be written for these schools.

Examinations.[4]—There are special, term, and annual examinations. The grade for the year depends upon these and upon daily marks.

Preparation of teachers.[5]—There is a class for training teachers in connection with the Tokyo High Technical School. Most of the students in this class are from the normal school and come to the technical school to learn the technical subjects.

HIGH TECHNICAL SCHOOL.

Organization.—For entrance the students must have the equivalent of the work of the middle schools. The course is three years of about 33 weeks each. This is a State school.

Aim of instruction.[6]—The school aims to train practical engineers.

[1] The Teaching of Mathematics in Japan; Art. XII, The Teaching of Mathematics in Technical Schools and Colleges.
[2] Ibid., p. 24.
[3] Ibid., p. 27.
[4] Ibid., p. 28.
[5] Art. XII, p. 42.
[6] Ibid., p. 29.

COURSE OF STUDY IN MATHEMATICS.[1]

Algebra. The course includes imaginaries, inequalities, permutations and combinations, maxima and minima, indeterminate forms, convergence and divergence of series, determinants, and the binomial theorem with any index.

Geometry. This takes up the computation of areas and volumes.

Trigonometry. This course includes the solution of trigonometrical equations and inverse trigonometrical functions.

Plane analytics. A study is made of conics, including the general equation of the second degree.

Solid analytics. This course extends through surfaces of the second degree.

Calculus. This is a fairly extended course in differential and integral calculus

Differential equations. Elementary course.

Schedule of hours in mathematics.

Branch courses.	Architecture.	Textile technology.	Electrical engineering.	Mechanical engineering.	Chemical engineering.
Algebra	66	66	66	66	.....
Analytics	99	99	99	99	.....
Mathematics	.....	.....	.....	.....	66
Calculus and differential equations	66	66	66	66	.....
Total	231	231	231	231	66

The remarks made concerning the nature of the instruction, examinations, and preparation of teachers under Technical Schools of Middle Grade apply here.

TRAINING SCHOOLS FOR LAND SURVEYORS.[2]

LOWER COURSE.

This is a course of one year. The preparation for admission seems to be completion of the middle school. These are State schools and aim to prepare practical surveyors. The average age of the students is 25 years.

COURSE OF STUDY IN MATHEMATICS.

Algebra. (Thirty-five hours.) The principal topics are series, binomial theorem, partial fractions, logarithms, differential coefficient, maxima and minima.

Solid geometry. (Forty hours). The course includes the usual material of elementary solid geometry, through spherical triangles.

Plane trigonometry. (Forty-five hours.) This is a course in elementary plane trigonometry.

Spherical trigonometry. (Twenty-five hours.) This course includes the solution of spherical triangles.

Analytics. (Forty hours.) This course extends through the equation of the second degree in the plane.

Method of least squares. (Forty hours.)

The instruction is given mainly by lectures. No textbooks are used.

[1] Art. XII, pp. 32-34. This program is recommended in the report, but it is not said to be in use.
[2] Art. XIII, pp. 44-48.

Examinations are given in some subjects. The teachers are selected from the best land surveyors, graduates of the Imperial University, and specialists in mathematics.

HIGHER COURSE.

This is a two-year course. The students are selected from the best practical surveyors. The average age of the students is 33 years. The aim is to train specialists "to guide common surveyors." [1]

COURSE OF STUDY IN MATHEMATICS.[2]

Algebra. (Sixty hours.) Series, determinants, probability, and theory of equations are studied.

Plane and solid analytics. (One hundred ten hours.)

Differential calculus. (One hundred hours.) This course extends through expansion of functions and maxima and minima.

Integral calculus. (One hundred forty hours.)

Differential equations. (One hundred twenty hours.) This is a course in ordinary and partial differential equations.

Dynamics. (Ninety hours.) This is a course in statics and dynamics of rigid bodies.

Method of least squares. (Two hundred hours.)

RUSSIA.

INDUSTRIAL SCHOOLS.[3]

SCHOOLS FOR APPRENTICES.[4]

Organization.—The course is three years in length. The age of entrance is from 12 to 15 years. The purpose of the schools is to give technical instruction during apprenticeship. In 1909 there were 28 of these schools.

COURSE OF STUDY IN MATHEMATICS.

Arithmetic. (Four hours a week the first year, two hours the second year, and one hour the third year.) The principal topics studied are fractions, ratio, proportion, and interest.

Geometry. This course gives the geometry needed in practice. No attempt is made to give rigorous proofs. This course is followed by geometric drawing.

ELEMENTARY TRADE SCHOOLS.[5]

Organization.—The length of the course is four years, but the last year is given to practice. The students enter from the primary schools at the age of 12 to 15 years. The aim of the schools is to educate for a trade. In 1909 there were 131 of these schools.

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[1] Art. XIII, p. 44.

[2] Ibid., p. 47.

[3] Rapports présentés a la Délegation Russe: Sur l'organization de l'enseignement des mathématiques dans les écoles industrielles du ressort du Ministère de l'Instruction Publique, par P. Kolournitzski et A. Hartzouck. Referred to hereafter as Rapport.

[4] Rapport, pp. 29–31.

[5] Ibid., pp. 29, 30.

COURSE OF STUDY IN MATHEMATICS IN THE HIGHER INDUSTRIAL SCHOOLS.

The following program is in force in the two schools in Budapest, and the differences between it and the programs in the other schools are noted.

Algebra. The course includes the fundamental operations, equations of the first degree in one or more unknowns, powers and roots, logarithms, equations of the second degree in one unknown, arithmetical and geometrical series, compound interest and annuities.

In both the other schools exponential equations are included; and the program of the school in Szeged contains also the binomial theorem, equations of the second degree in more than one unknown, and approximate solutions of equations of higher degree.

Geometry. The principal topics in plane geometry are the angle, triangles, the principal properties of quadrilaterals, polygons, the circle, similar figures, and the computation of the surfaces of polygons and the circle.

The work in solid geometry includes the principal properties and the computation of the surfaces and volumes of the prism, pyramid, cylinder, cone, and sphere.

Trigonometry. This course gives the fundamentals of goniometry and the solution of triangles.

Constructive and descriptive geometry. This course begins with a review of the elementary constructions of plane geometry and goes so far as to include the representation of the prism, pyramid, cylinder, cone, and sphere in different positions by orthogonal projection and parallel perspective, and their development and plane sections. The most important cases of the intersections of solids are taken up.

COURSE OF STUDY IN MATHEMATICS IN THE TRADE SCHOOLS.

The official course of study for the trade schools contains the following work in mathematics.

The following work is outlined for all the trade schools except those for watchmakers and certain other highly skilled mechanicians (*Feinmechaniker*):

First year. (The student's seventh school year.) (Two hours a week.) The course includes the fundamental operations with integers, common fractions, decimal fractions, factoring, squares and square root, the metric system, and the finding of areas and volumes.

Second year. (The student's eighth school year.) (Two hours a week.) This year the students study ratio, proportion and its use in the solution of problems, percentage and its applications, partnership, alligation, and exchange.

Third year. (The student's ninth school year.) (One hour a week.) This is a course in commercial arithmetic, including problems from industrial life, exchange, discount, revenues, stocks, and bonds.

The watchmakers and *Feinmechaniker* have the following courses:

First year. (The student's seventh school year.) (Four hours a week.) *Algebra* and *geometry.* The course in algebra, which also includes a review of arithmetic, involves a review of the fundamental operations with common and decimal fractions, powers and roots, equations of the first degree in one or more unknowns, simple and compound proportion, and the solution of practical problems.

The principal topics studied in geometry are the measurement of lines and angles, the congruency and similarity of triangles, quadrilaterals, polygons, the circle, the ellipse, and spirals.

Second year. (The student's eighth school year.) (Two hours a week.) *Algebra* and *geometry*. The subjects taken up in algebra are logarithms and their applications to problems in watchmaking, and the solution of practical problems.

The course in geometry includes a study of the cube, prism, cylinder, pyramid, cone, and sphere, and the computation of their surfaces and volumes. Some work in plane trigonometry is given in this course.

Third year. (The student's ninth school year.) (Two hours a week.) *Arithmetic, algebra*, and *geometry*. Some simple commercial arithmetic is given, including percentage, interest, and exchange.

The topics studied in algebra are equations of the first and second degree in one and two unknowns, and simple cases of the binomial theorem.

The applications of trigonometry to watchmaking are discussed.

There is a course in geometrical drawing and descriptive geometry in the first year in all the trade schools. The time given to this course is three hours a week in the schools for the textile industries and six hours a week in all other schools. A course of two hours a week in these subjects is given in the second year in the schools for the building trades.

Methods of instruction.—The time given to a subject is divided officially into lecture hours and examination hours. During the first the professor lectures without interruption, and in the last he gives tests to see if the students have mastered the lectures. There are, furthermore, certain review hours in mathematics, which are devoted to the solution of practical problems.

Examinations.—There are reviews of a month in length at the end of each semester. These, with the examination hours mentioned above, include everything that is given in the way of examinations.

Preparation of teachers.—There is no special preparation for teachers in industrial schools. An engineer's diploma is required of the teachers of most subjects. Mathematics may be taught either by engineers or those prepared to teach in the secondary schools.

ITALY.

INDUSTRIAL SCHOOLS.

The part of the Report[1] of the Italian Subcommission that deals with the industrial and commercial schools gives a brief account of the organization of these schools, but gives no outlines of the courses of study in mathematics except in the case of the commercial schools.

The following table[2] gives the kinds of commercial and industrial schools and the number of each. These statistics are for the school year 1908:

Schools of agriculture:	Number.
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[2] Ibid., p. 6.

NAVIGATION SCHOOLS.

Navigation is taught in five general technical schools and in two navigation schools. The number of students is about 300. The students obtain the pilot's certificate.

The subjects studied are arithmetic, algebra, geometry, trigonometry, topography, geography, physics, design, astronomy, and piloting.

SWEDEN.

INDUSTRIAL SCHOOLS.[1]

ELEMENTARY INDUSTRIAL SCHOOLS.

Organization.—There were at the time that the report was written (1911) about 60 elementary industrial schools in Sweden, 54 of which had State support. These schools began with private foundations, but have gradually come under State or community control.

The school year has two semesters—13 weeks in the fall and 20 weeks in the spring. The instruction is usually given from 7 to 9 in the evening, on weekdays, and from 8 to 10 on Sunday mornings.

The course is two or three years in length.

The entrance requirements are an age of at least 14 years and the certificate of dismissal from the Volksschule.

A small fee of from 1 to 2 crowns (27 cents to 54 cents) is charged.

These schools are not compulsory, but a commission is working over the plan of instruction, and it is hoped that attendance will be required between the ages of 14 and 18. In schools where the numbers justify it the students are divided into classes according to occupation, and the instruction in mathematics is adapted to the needs of the different trades.

Aim of the instruction.—The aim of these schools is to give practical industrial training.

COURSE OF STUDY IN MATHEMATICS.

Arithmetic. The course in arithmetic usually extends through three semesters, two hours a week. "In arithmetic,[2] where the object of the teaching is to give the students skill in the computations that they will meet in their special trades, the course given includes whole numbers, common and decimal fractions with applications, percentage, interest, stocks and bonds, discount, and general problems that can be solved by the aid of equations of the first degree."

Algebra. This is a course of two hours a week, but the number of semesters is not given. The topics studied include integral and fractional expressions and equations of the first and second degree.

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[1] Der mathematische Unterricht in Schweden: Der mathematische Unterricht an den elementartechnischen Gewerbeschulen Schwedens, by Dr. K. L. Hagström.

[2] Ibid., p. 3.

Geometry. There is usually a course of one year, with one or two double periods a week. Six books of Euclid are studied, particular attention being given to problems of construction. Practice is given in the computation of areas and volumes.

In some industrial schools trigonometry and calculus are taught.

Methods of instruction.—There are short lectures by the teacher, followed by the solution of problems by the students.

The same books are used as in the secondary schools.

MIDDLE TECHNICAL SCHOOLS.[1]

Organization.—Students who have finished the Realschule enter without examination. These schools are said to belong to group C in the plan of the International Commission. The average age of entrance is about 18 years. The length of the course is three years.

COURSE OF STUDY IN MATHEMATICS.

There is much freedom given the teacher as to the nature of the instruction. The official plan requires only that certain subjects be taught. These are arithmetic, plane and solid geometry, algebra including computations with series and logarithms, plane trigonometry, and the elements of analytical, descriptive, and practical geometry. Calculus is taught in some schools.

Aims and methods of instruction.—The official instructions recommend that the teacher keep constantly in mind the needs of the industries. Mathematics is to be regarded as a tool. Hence the parts that have only a theoretical value will be omitted, such as certain formal parts of algebra. Geometry is of great importance in design. Therefore it should be developed so as to contribute as much as possible to practical applications. The principal aim of the calculus is to prepare the student to read technical literature.

Examinations.—Examinations are held at the option of the teacher to determine the progress and promotion of the students. There is no final examination. A diploma is granted at the completion of the course.

SWITZERLAND.

COMMERCIAL SCHOOLS.[2]

COMPLEMENTARY COMMERCIAL INSTRUCTION.

Organization.—The complementary commercial instruction is both public and private. Courses are organized by commercial socities, by communes, and by one Canton (Fribourg). The students are

[1] Der mathematische Unterricht in Schweden: Die Mathematik an den technischen Lehranstalten in Schweden, II: Der mathematische Unterricht an den technischen Mittelschulen, by O. Gallander, pp. 14–21.

[2] L'Enseignement mathématique en Suisse, No. 6: Les mathématiques dans l'enseignement commercial suisse, by L. Morf. Referred to hereafter as No. 6.

apprentices and adult employees. The programs given in the report are for a course of three years.

Aim of the instruction.[1]—The aim of the mathematical instruction is to give the students accuracy and speed in the calculations involved in commercial affairs.

COURSE OF STUDY IN MATHEMATICS.[2]

In the courses of study given in the report, from one to two hours a week for three years are given to elementary and commercial arithmetic, and the same to bookkeeping.

Arithmetic. The following are the principal topics taken up in the different years:

First year. Computing by the hundred and by the thousand, English money and measures, and a review of fractions.

Second year. Interest, discount, exchange, ratio and proportion, alligation, and partnership.

Third year. Accounts current, accounts involving public funds, oral calculation, and a review of the work of the three years.

Bookkeeping. Some of the topics given in this course are simple and double entry by American and Italian methods, accounts of a society, loss and gain accounts, balances, partnership accounts, accounts of an industry and of a hotel.

Methods of instruction.[3]—The method used is that of exposition by the teacher, followed by the solution of numerous problems in and outside of the recitation.

Books.—A list is given of the books most widely used. For arithmetic these books are mainly collections of problems.

Examinations.[4]—At the end of the last year of the course an examination is given to which any person who has served two years' apprenticeship is eligible, whether or not he has attended the *cours complementaires*. This is an examination for a diploma and is required of apprentices in 10 Cantons. The tendency is to make it compulsory everywhere. This examination requires, in arithmetic, a written examination lasting from 2 to 2½ hours, and a test in oral calculation lasting from 6 to 7½ minutes; in bookkeeping, a written examination lasting from 3 to 3½ hours, and an oral one lasting from 6 to 7½ minutes.

The examinations are set by the Cantons or by the commercial societies, according to the school. They are under the supervision of the Federal department of commerce and industry, and in certain Cantons under that of the cantonal department of commerce and industry.

The examples of examination questions given in the report[5] are in the main practical ones, such as would occur in business practice.

[1] L'Enseignement mathématique en Suisse, No. 6: Les mathématiques dans l'enseignement commercial suisse, by L. Morf. Referred to hereafter as No. 6, p. 3.

[2] Ibid., p. 5.

[3] Ibid., p. 11.

[4] Ibid., p. 6.

[5] Ibid., pp. 6–11.

Preparation of teachers.[1]—The teachers belong to three groups—elementary school teachers, secondary school teachers, and persons engaged in business. Apparently no special preparation is required. These teachers are usually paid by the hour, at the rate of from 3 to 5 francs. In the larger places there are permanent positions which may pay as much as 4,800 or 6,000 francs for work of 28 hours a week.

SECONDARY COMMERCIAL INSTRUCTION.

1. The Lower Secondary Schools of Commerce.[2]

There are few of these schools. They have had support from the Federation since 1909. They have a large attendance of girls. The length of the course is one or two years. From five to six hours a week are given to arithmetic and bookkeeping in each year in a course of study outlined in the report. This is a two-year course and is used in a school in Basel. The subject matter in this course is similar to that already given on page 74.

2. Higher Schools of Commerce.[3]

Organization.—These schools are partly supported by the Federal Government. In some of the Cantons students of the ages of 14 or 15 who are normal in their studies are admitted without examination, and some schools require an examination of all students. Of 31 official schools of commerce, 6 are attended by boys only, 11 by girls only, and 14 are coeducational.

Aims of the mathematical instruction.[4]—The aims of the mathematical instruction are said to be to develop ability to reason, to give precision in language, to give ability in abstract and applied calculation, and to prepare the students for advanced commercial work in the university.

COURSE OF STUDY IN MATHEMATICS.[5]

The department of commerce of the Federal Government has issued a type program for courses of three and of four years. In the former, 10 hours a week are prescribed for arithmetic and 11 for bookkeeping and commercial work; and in the latter, 13 hours for arithmetic and 16 hours for bookkeeping and commercial work. Besides these, courses in algebra, geometry, and trigonometry are usually given.

Arithmetic. (*a*) Elementary arithmetic. "Review of arithmetic from the point of view, especially, of rapid calculation." This includes a review of the fundamental operations with integers and fractions, the metric system, square root, ratio and proportion, percentage, interest, discount, proportional division, alligation, and partnership, and oral calculation.

[1] No. 6, p. 12. [2] Ibid., p. 13. [3] Ibid., p. 14. [4] Ibid., p. 18. [5] Ibid., pp. 19–21.

(*b*) Commercial arithmetic. This includes a study of notes, bills, and accounts; the moneys and measures of the principal countries; methods of exchange and values of the precious metals; and buying and selling of stocks and bonds and other securities.

Algebra. (*a*) Elementary. This course begins with the fundamental operations and extends through square and cube root, equations of the second degree in one or more unknowns, arithmetical and geometrical progressions, logarithms, and permutations and combinations.

(*b*) Financial. This includes a study of compound interest, annuities, sinking funds, and public loans.

(*c*) Insurance. A study is made of probabilities and of mortality tables and their uses.

Elementary geometry. "Study of plane surfaces. Surfaces and volumes of the principal bodies."

Plane trigonometry. This course includes the solution of triangles.

Bookkeeping. This is a fairly comprehensive course in bookkeeping, including sets of books for banks and for mercantile and industrial establishments.

The courses in mathematics in certain schools include a few topics not mentioned above.

Methods of instruction.[1]—"The method employed is the method of exposition; it is reduced, generally, to a strict minimum; it is possible to devote much time to the solution of numerous and varied problems drawn, usually, from the domain of practical affairs." Little use is made of models. There is a list given of the textbooks in general use.

Examinations.[2]—"The examinations for promotion at the end of the year are giving way more and more to quarterly examinations." The grade for the quarter is obtained by combining the examination grade with the grade made in recitation. The average of the three quarterly grades is the grade for the year. A diploma is given students who finish the course and pass an examination. This examination is both oral and written and is based mainly upon the work of the last year of the course. The question is being considered of creating a Federal diploma for these schools.

About 20 pages[3] of the report are taken up with questions used in the examinations. These questions are in the main in arithmetic and bookkeeping, some in algebra and geometry. They are almost entirely applied problems, those in arithmetic dealing with somewhat complicated questions of accounts current, exchange, stocks and bonds, insurance, and profit and loss.

Preparation of teachers.[4]—The teachers prepare themselves either in a university, by private study, or, in a few cases, by commercial practice. It is recommended that some practical experience be made a part of the preparation of those who expect to teach in the commercial schools. A part of the teachers of mathematics in the commercial schools are selected from those who have prepared to teach in the secondary schools. It appears, then, that no definite require-

[1] No. 6, p. 47. [2] Ibid., pp. 25, 26. [3] Ibid., pp. 26–46. [4] Ibid., p. 48.

ments are made of teachers of mathematics except the passing of a special examination.

Present tendencies.—"The actual experiences are too recent for it to be possible to indicate a definite tendency in the teaching of mathematics in the higher schools of commerce." [1] It is of interest, however, to note the growth of these schools. In 1891, when the Swiss Federation first began to give them aid, there were 8 schools of commerce, with about 700 students. In 1910 there were 31 official schools of commerce, with 3,477 students—2,249 male and 1,228 female.

SCHOOLS OF ADMINISTRATION AND FOR THE RAILWAY SERVICE.[2]

Organization.—"By a school of administration is meant a school that prepares the youth to enter the Federal post office, telegraph, telephone, or customs service." [3]

The schools of administration and for the railway service have courses of two or three years. Students enter at the age of 14 or 15 years. "Students who have completed their previous studies normally are admitted without examination; each school reserves the right, however, to examine all students." The entrance examination includes the mother tongue, arithmetic, geography, and national history.

COURSE OF STUDY IN MATHEMATICS.[4]

The time given to arithmetic varies from four hours a week for one year to three hours a week for three years; to algebra, from one hour a week for six months to two hours a week for two years; to geometry, from nothing to one hour a week for three years; to bookkeeping, from nothing to two hours a week the first year and one hour a week the second year.

The following outline of the course is given:

Arithmetic. (*a*) Elementary. "Review and extension of the four fundamental operations with integers and fractions. Common fractions. Ratio and proportion. Simple and compound rule of three. Interest and discount. Proportional division. Partnership and alligation. Metric system. Square root."

(*b*) Commercial. "Calculation of interest by different methods. Stocks and bonds. Accounts current. Bills and notes."

Elementary geometry. "Calculation of surfaces and volumes."

Elementary algebra. "The four fundamental operations with positive and negative numbers. Fractions. Square and cube root. Equations of the first and second degree. Progressions and logarithms."

Elementary bookkeeping. This is an elementary course.

Methods of instruction.[5]—The methods used are similar to those used in the commercial schools.

Books.—A list of the books in general use is given.[5]

[1] No. 6, p. 53. [2] Ibid., pp. 64–69. [3] Ibid., p. 64. [4] Ibid., pp. 65, 66. [5] Ibid., p. 68.

Examinations.[1]—Examinations are given under conditions similar to those of the higher commercial schools. A diploma is given at the completion of the course.

Preparation of teachers.[2]—The teachers in these schools should have the preparation required of the teachers in the secondary schools.

INDUSTRIAL SCHOOLS.[3]

ELEMENTARY TECHNICAL SCHOOLS.

Under the head of elementary technical instruction are discussed the trade courses (cours professionels) and the permanent trade schools (écoles professionelles permanentes).

VOCATIONAL COURSES.[4]

These trade courses are for apprentices and give from four to seven hours of instruction a week. The law of Bern, which is cited, requires the attendance of apprentices in places where schools exist. "These courses [5] are supported by particular corporations, by cities, and by the cantonal and Federal authorities, and they are regularly inspected by their delegates. The Federal support is 50 per cent of that of the corporations plus one-third of the net expenses."

The trade courses are a regular part of the system of continuation schools of Switzerland. The continuation schools usually give courses of two or three years.[6] Attendance is required in 13 Cantons, is voluntary in 5, and in the hands of the municipalities (Gemeinden) in 3 Cantons. The general aim of these schools is to supplement the common-school education, and also to furnish the apprentices in the different trades the necessary theoretical instruction.

From two to four hours are given to mathematics in the trade courses. The time given to the different mathematical subjects is in general as follows:[7]

Arithmetic, 1 or 2 hours a week, one course each year.
Geometry, 1 or 2 hours a week, one course each year.
Bookkeeping, 1 hour a week, one course each year.
Geometrical drawing, 2 to 4 hours a week, one course each semester.
Projection, 2 to 4 hours a week, one course each semester.

A discussion of the aims and methods of instruction is given under the permanent trade schools.

Examinations.—The only examination mentioned is the one at the end of the apprenticeship, which is obligatory in most Cantons.

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[1] No. 6, pp. 66, 67.
[2] Ibid., p. 69.
[3] L'Enseignement mathématique en Suisse: No. 5, L'Enseignement des mathématiques dans les Écoles techniques moyennes suisses, by Dr. L. Crellier. This report is referred to hereafter as No. 5.
[4] Ibid., pp. 11–15.
[5] Ibid., p. 11.
[6] L'Enseignement mathématique en Suisse: No. 2, Der mathematische Unterricht an den schweizerischen Primarschulen, by Just. Stocklin, p. 13.
[7] No. 5, p. 26.

PERMANENT VOCATIONAL SCHOOLS.[1]

Organization.—"Certain cities have gone further than the trade courses.[2] Assisted by various trade associations and by the cantonal and Federal authorities they have organized trade schools in which young people serve their complete theoretical and practical apprenticeship. Only those apprentices may enter who are not required to attend the public schools. They are then at least 14 or 15 years of age and remain two, three, or four years, according to the obligatory duration of the apprenticeship. These institutions are inspected by the Confederation and are supported by it to the same extent as the trade courses. In these trade schools we develop the superior workmen, capable of becoming excellent foremen after some years of service in the shops. This is the intermediate stage between the elementary and the middle school instruction."

Aim of the instruction.—These schools are organized to assist in the development of the industries of the places in which they are located. The larger cities have schools for different trades.

Number of hours spent in the schools.—As a rule, the apprentices are in the schools 56 hours a week (in some only 52), 9½ hours daily except Saturday, when the time is 8½ hours. "The purely practical or purely vocational instruction takes from 33 to 48 hours, according to the school and the trade.[3] There remains then from 8 to 19 hours for general and technical culture. The largest part of this time is given to mathematics."

The courses usually given in mathematics are the following:[4]

	Hours per week.
Arithmetic, one course a year	2
Geometry, one or two courses a year	2
Algebra, one or two courses a year	2
Trigonometry, one course a year	2
Mechanics, one or two courses a year	2
Bookkeeping, one course a year	1
Geometrical drawing, one course a semester	4
Projection, one course a semester	4

COURSE OF STUDY IN MATHEMATICS.

Report No. 5 gives outlines of the courses in mathematics offered in four of the middle trade schools. The following abstract of the courses offered in the section for mechanics in the School of Arts and Crafts of Geneva[5] will give a fairly good notion of the nature of the work done in mathematics as shown in the report:

FIRST YEAR. (PROBABLY THE STUDENT'S NINTH SCHOOL YEAR.[6])

Numerical calculation and algebra. (Two hours a week.) This course includes calculations involving simple literal expressions, the solution of easy equations from geometry, mechanics, and physics, technical tables, and graphical representation.

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[1] No. 5, pp. 15–27.
[2] Ibid., p. 15.
[3] Ibid., p. 26.
[4] Ibid., p. 27.
[5] Ibid., pp. 24, 25.
[6] The number of years of school attendance before entering the trade school is not the same in all the Cantons.

Geometry. (Three hours a week.) The topics taken up in this course are geometrical constructions, curves used in mechanics; reduction of figures, the pantagraph; and practical applications to solid geometry, such as the calculation of surfaces, volumes, and weights of pieces of machines.

Mechanics. (Two hours a week.) This course includes elementary statics with applications to machines and the elements of kinematics and dynamics.

Technical drawing. (Six hours a week.) The principal topics in this course are making sketches of the tools in the shop, general principles of machine design, and the elements of elementary and descriptive geometry applicable to machine design.

SECOND YEAR. (THE STUDENT'S TENTH SCHOOL YEAR.)

Trigonometry. (Two hours a week during one semester.) This is a course in plane trigonometry with applications to mechanics.

Mechanics. (Three hours a week.) This course includes applied kinematics, the problem of falling bodies, and the study of such mechanisms as cams, connecting rods and cranks, and gearing.

Resistance of materials. (Two hours a week during one semester.) There is a study of simple problems; applications to such cases as belts and gearing; the use of tables.

Technical drawing. (Six hours a week.) General principles of machine design, with applications to the machines used or constructed.

THIRD YEAR. (THE STUDENT'S ELEVENTH SCHOOL YEAR.)

Mechanics. (Four hours a week.) This includes further study of dynamics and of certain types of motors.

Technical drawing. (Six hours a week.) Sketches, working drawings, copies, and blue prints.

Methods of instruction.—The following remarks on the methods of instruction apply to the trade courses as well as the permanent trade schools unless otherwise stated:

Arithmetic. "The teaching of arithmetic in the trade courses and in the shops for apprentices requires an annual course of one or two hours and has for its principal aim the solution of vocational applications.[1] We mean here by vocational applications all the practical problems which may be met in the trade of the apprentice. The carpenter calculates surfaces, volumes, and the buying and selling prices of materials used in his trade. The locksmith deals with the surfaces, volumes, weights, and prices of pieces of iron of various kinds.

"The instruction, however, is systematic and is developed as in the other schools—complete knowledge and facility in the four operations: Metric system; rule of three; calculation of costs and selling prices; rules of interest and discount."

"As to programs and methods they may be summed in this: [2] To arrive at a practical and useful result by the simplest and most intuitive means."

"The method [1] of work usually adopted consists in the solution of numerous problems, either on the blackboard or in the notebook, and always, if possible, in class under the the supervision of the master. Little or nothing of books and nothing of written theory."

We find here the not unusual complaint concerning the poor work done in arithmetic in the elementary schools:

"In all cases the fact is this: [1] The young people who enter the technical schools do not know sufficiently well how to calculate." "The teaching of arithmetic in the elementary technical schools reveals another general defect: The students who come

[1] No. 5, p. 74. [2] Ibid., p. 27.

to us do not know how to prepare the solution of a problem in arithmetic. Now, such a task is at once a matter of reasoning, of order, and of good taste upon which it is absolutely necessary to insist. It is not the writer who is speaking here, but a great number of colleagues who replied to the questionnaire."

Geometry. The work begins with a review of the properties of lines, surfaces, and solids which the students have learned in the elementary school. "We continue with purely intuitive instruction.[1] The knowledge of geometrical figures is developed by the aid of drawings, and that of solids by the examination of models in wood or cardboard. The principal rules are established by the use of decomposable cardboard figures." "While being intuitive, the instruction remains systematic; the study of perpendiculars and obliques, of the equalities of triangles, the circle, parallelograms, surfaces, the Pythagorean proposition, and regular polygons lends itself to this method of treatment. Such is, in its large outlines, the geometric basis of the knowledge of our future artisans."

"We may add that, without question, it is impossible to put a manual of geometry into the hands of the students. First of all, there does not exist to our knowledge a French or German text that fulfills completely the requirements of the technical schools. On the other hand, it is not in thumbing a book that a young person learns geometry."

The method of instruction is to have the necessary theory dictated by the teacher and copied by the students in notebooks. Many exercises are solved. Plane and solid geometry are developed together. "The notions of geometry are terminated with the principal properties of the regular pyramid, cone, right prism, cylinder, by utilizing the construction of these to aid in their development." [2]

Algebra. Algebra is seldom taught in the trade courses. The following remarks apply to the permanent trade schools:

"As in arithmetic, this course is directed toward a utilitarian end." [3] "As in arithmetic, little of theory, each new question, each step in advance is explained by corresponding examples. The solution of numerous exercises by the students on the blackboard, and in the class notebook, such is the method recommended and adopted by the most of the schools."

The books most used are:[4]

C. Morf et S. Tzaut, exercices et problèmes d'algèbre.
E. Bardey, Aufgabensammlung.

MIDDLE TECHNICAL SCHOOLS.

Organization.—The most of the middle technical schools are under the control of the Cantons. The lengths of the courses are from three to nine semesters, with five and six semesters as the most frequent lengths.

Entrance requirements.—"The technical schools[5] receive, after examination, youths of 15 years who have attended the last two classes of a secondary school and who possess the knowledge required by its regulations.

"This knowledge includes: Elementary arithmetic. The elements of algebra and geometry. The mother tongue (preparing a simple composition with ease and confidence). Free-hand and elementary geometrical drawing."

[1] No. 5, p. 76. [2] Ibid., p. 77. [3] Ibid., p. 79. [4] Ibid., p. 81. [5] Ibid., p. 32.

A part of the students have several years of shop experience before entering the technical schools.

Aims.—"Between the engineer,[1] the thought that conceives, and the workman, the hand that executes, a 'technician' is necessary, capable first of grasping easily the projects and plans of the engineer or the architect, and then directing their execution with intelligence."

As the principal aim of these schools is to educate these technicians the principal aim of the mathematics is a purely practical one. It is intended, however, that the mathematics be taught so as to develop logical thought.[2] The young technician must know enough mathematics to organize and solve his problems mathematically, and to be able to read the literature of his subject.

COURSE OF STUDY IN MATHEMATICS.

'The number of hours weekly (spent in the school) is in the neighborhood of 40 throughout the course.[3] In the first year 12 or 15 hours are given to pure mathematics, in the second year 5 or 6, and in the third year only 2 or 4. In the second year the course in applied mathematics requires 8 or 10 hours."

The following course [4] in mathematics is given in the section for mechanicians in the *Technicum* of Berthoud. The length of the course in this school is five semesters.

FIRST SEMESTER. (THE STUDENT'S NINTH SCHOOL YEAR.)

Arithmetic. (Six hours a week.) The principal subjects studied are the fundamental operations, systems of measures, fractions, ratio, and proportion, percentage and its applications, partnership, and alligation.

Algebra. (Four hours a week.) This course includes the fundamental operations with integral expressions, equations of the first degree in one unknown, proportion, and logarithms.

Geometry. (Three hours a week.) The theorems of plane geometry, the constructions, and computations are taken up.

Geometrical drawing. (Five hours a week.)

SECOND SEMESTER. (THE STUDENT'S NINTH SCHOOL YEAR.)

Algebra. (Four hours a week.) The topics studied in this course are equations of the first degree in more than one unknown, equations of the second degree, powers and roots, logarithms, the slide rule, arithmetical and geometrical series, and compound interest.

Geometry. (Four hours a week.) This is a course in solid geometry and includes the most important theorems, and computations of the surfaces and volumes of the elementary solids and also of the prismatoid and of solids of revolution. There is a short introduction to trigonometry which is used in the computations of volumes.

Projective geometry. (Four hours a week.) This course begins with the projection of the point and the straight line and extends through the study of the plane sections of pyramids, prisms, cylinder and cones, and the intersections of bodies bounded by plane and curved surfaces.

[1] No. 5, p. 28. [2] Ibid., p. 99. [3] Ibid., p. 42. [4] Ibid., pp. 50–55.

THIRD SEMESTER. (THE STUDENT'S TENTH SCHOOL YEAR.)

Plane trigonometry. (Three hours a week.) This includes the solution of oblique triangles and applications.

Analysis. (Four hours a week.) This course includes the binomial theorem, the notion of a function, and an introduction to differential calculus and its application to the theory of curves and to mechanics, and to the development of functions into power series.

Descriptive geometry. (Three hours a week.) Intersections of solids and applications to numerous problems in the construction of machines. Light and shade and parallel perspective.

Mechanics. (Four hours a week.) This is a course in the elementary theory of mechanics, with many practical applications.

Resistance of materials. (Four hours a week.)

FOURTH SEMESTER. (THE STUDENT'S TENTH SCHOOL YEAR.)

Analysis. (Three hours a week.) Introduction to integral calculus and applications to geometry and mechanics.

Mechanics. (Six hours a week.) This course includes something of the dynamics of rigid bodies, hydrostatics, and hydraulics with applications.

Graphical statics. (Two hours a week.)

FIFTH SEMESTER. (THE STUDENT'S ELEVENTH SCHOOL YEAR.)

Mathematics. (One hour a week.) Review with selected examples. Short introduction to practical geometry.

Graphical statics. (One hour a week.)

Methods of instruction.—What has been said concerning the general aims and methods of instruction in the trade schools applies here. The instruction is expected to be concrete, to involve many practical problems, and in point of view of theory to be limited to what is absolutely necessary. "All the purely theoretical developments are suppressed." [1]

The work in descriptive geometry and in geometrical and technical drawing is said to be of great importance, is given much time and attention, and every effort is made to keep the instruction thoroughly practical.

Much importance is attached to the study of mechanics in the middle technical schools. It is sometimes taught by mathematicians and sometimes by engineers. "We will only add that the choice of examples is made in absolute conformity with the technical needs of the students, and that this course is characterized by a great number of carefully chosen graphical and numerical problems." [2] It is urged that in geometry and in mechanics "the professor should prepare the examples according to the necessities of the school.[1] He ought to know the questions of which the technologists have the greatest need; his problems ought to relate the mathematical theory to the other branches of the program."

[1] No. 5, p. 101. [2] Ibid., p. 89.

Examinations.[1]—At the end of the course the students take an examination to obtain the *diplôme de technicien.* In certain schools there is an examination at the end of the second year which includes the examination in pure mathematics.

The examination in mathematics is oral and written, on algebra, geometry, trigonometry, analytics, mechanics, and the resistance of materials. A considerable number of examination questions are given in the report.[2] The most of these examples are theoretical or involve such applications as are found in the books.

Preparation of teachers.[3]—In general the teachers in the middle technical schools are engineers and architects with diplomas from the higher technical schools, and professors of branches of general culture who have the *diplôme de maître de gymnase.*

Some of the instructors of technical branches are technologists who after leaving the *Technicum* have gone into practice, and later have gone into teaching. Some of the teachers of nontechnical subjects have only the *diplôme de maîtres secondaires.* "We have then no special preparation for the professors of technical instruction. There is found the engineer with no pedagogical knowledge, and the mathematician with no technical knowledge." It generally happens, however, that the engineer has a taste for teaching, and the mathematician is interested in mechanics or architecture; so that the results seem to be good. It is recommended that some special preparation be given instructors in technology, just as is now done in the case of the teachers in the secondary schools. "It is not sufficient for a future professor to be instructed in his subject; it is necessary that he should have practice teaching, show what he can do, and by some well directed trials improve and perfect his individual methods."

UNITED STATES.

The vocational schools of the United States have no general State or national organization, and present great diversity of organization, aims, and methods. As a rule these schools have grown up to meet the needs of particular vocations or of particular localities. The types are not clearly defined, and it is practically impossible to give detailed descriptions that will apply to a large number of schools.

The data used here are taken almost entirely from the American reports to the International Commission on the Teaching of Mathematics. Only some of the principal facts are given here, and references are made to the reports for details.

[1] No. 5, p. 97. [2] Ibid., pp. 91-97. [3] Ibid., p. 102.

COMMERCIAL SCHOOLS.[1]

Private commercial schools.—There is generally no definite entrance requirement. The aim is to prepare young persons, in the shortest possible time, to take such positions as that of clerk, bookkeeper, accountant, and stenographer. The courses are from a few months to two years in length. Commercial arithmetic is usually the only work in mathematics.

Commercial departments in high schools.—These are ordinary high schools, and the course offered by the commercial department is only one of several that may be elected by the students. The work in mathematics in the commercial course differs from that of the other courses in including commercial arithmetic and bookkeeping, and less of algebra and geometry.

Commercial high schools.—These have the same organization as other high schools, and hence require for entrance the completion of the eighth grade of the elementary school, and the pupils are as a rule 14 years old when they enter. The aim of the commercial high school, as well as of the commercial department in the general high school, is to give a general education and at the same time to give vocational training that may be utilized immediately after leaving the school. Both of these classes of schools prepare for the same kinds of positions as those mentioned under private commercial schools.

The courses in mathematics offered are commercial arithmetic, algebra, geometry, bookkeeping, and sometimes trigonometry.

The length of the course is four years.

INDUSTRIAL SCHOOLS.

Intermediate industrial, preparatory trade, or vocational schools.[2] — The aim of these schools is to prepare for a trade. In order to enter these schools the student must be at least 14 years of age and have completed at least the first six years of the elementary school. These schools are as a rule supported by public funds. "In schools of this class the course of study commonly combines bookwork and shopwork in almost equal proportions. The bookwork generally includes English, shop mathematics, industrial history, and civics, together with the elements of physics and chemistry."

Trade schools with day courses.[3] —"In these schools the aim is to prepare pupils for actual work in the trades in the shortest possible time." The length of the course varies with the needs of the student. In some schools of this class very little attention is given to mathematics; but other schools "giving longer courses frequently give very

[1] International Commission on the Teaching of Mathematics. The American Report: Mathematics in the Technical Secondary Schools of the United States, pp. 21–29.

[2] Mathematics in the Elementary Schools of the United States, pp. 154, 155.

[3] Ibid., pp. 155, 156.

thorough instruction in English, mathematics, and science." The work in mathematics sometimes includes the elements of arithmetic, algebra, geometry, and trigonometry.

Some of these schools are supported by private foundations and others by public funds.

Apprenticeship schools.[1]—"Apprenticeship schools are provided by a number of large industrial corporations for the education of boys who are learning their trade." "Through training in mathematics, drafting, English, and science there are recruited from the ranks of those who work in the shops a group of men much more capable than the ordinary worker." "The fact that in most of these schools shop time is taken for the class work, and that this time is paid for at the regular rate, is an indication of the value attached to such exercises." These schools offer courses in arithmetic, and in some cases courses in algebra, geometry, and trigonometry.

Evening schools.[2]—These schools are supported by private foundations, by public funds, and by societies such as the Young Men's Christian Association. "They are intended to give a type of education, both theoretical and practical, that will give the worker at the trade a better understanding of his work and of its relationship to the industry toward which his work contributes." Some of these evening schools give free courses. Certain schools give courses extending over a number of years. The free night school of the Cooper Union in New York, for example, offers a five-year course in general science. The mathematics offered in this course includes algebra, plane and solid geometry, trigonometry, analytical geometry, calculus, and mechanics. A student will generally be admitted to a course in an evening school if he gives evidence of sufficient preparation to profit by the course.

Part-time schools.[3]—"The part-time plan, as carried on at Fitchburg, Mass., is an arrangement by which boys in the high school give half of their time to work for wages in the commercial shops in the city and half to school work." Like other high schools, these schools require the completion of the eight grades of the elementary school for admission. "For the first year the boy devotes his entire time to school work, and for the next three years equal groups of boys alternate between shop and school, so that one group is always at work in the shops and one in the school."

Trade schools for the colored races.[4]—"The object of these schools is to teach a skilled trade to Indians and Negroes. In some of these schools there is a course of four years. The entrance requirements vary. In some of these schools the relationship between industrial

[1] Mathematics in the Elementary Schools of the United States, pp. 156, 157.
[2] Ibid., pp. 157–159.
[3] Ibid., p. 159.
[4] Ibid., pp. 159, 160.

and ordinary academic work is exceptionally well handled. This is peculiarly true in the subject of mathematics. The problems of the shop and farm are quite commonly treated in the classes in arithmetic, algebra, and geometry."

Technical schools with day courses.[1]—"The schools included under this classification are of secondary grade and do not give instruction of higher engineering rank. The courses are designed to give the pupil such acquaintance with scientific and mathematical principles underlying commercial processes as will enable him to qualify in time for the work of foreman, master mechanic, inspector, etc." The completion of the high school is usually required for entrance. The length of the course is usually four years. Some of these confer degrees. The work in mathematics includes algebra, plane and solid geometry, trigonometry, analytical geometry, calculus, and mechanics.

Manual training and technical high schools.[2]—Like other public high schools, these schools require for admission the completion of the eight grades of the elementary school, and give a course of four years. The aim of these schools is to give a general education which touches more closely the industrial life of the community than does the conventional classical and literary courses, and to prepare for higher technical training. Some direct training for the trades is given.

"In schools [3] where curricula are arranged with more or less reference to the requirements of the colleges, algebra, geometry, and trigonometry receive about the same amount of time as in general secondary schools, viz, one year each of elementary algebra and plane geometry, and one half-year each of advanced algebra, solid geometry, and trigonometry. A year's work ordinarily represents five exercises per week for 33 to 40 weeks, i. e., a total of 165 to 200 exercises. The length of the exercises is from 40 to 50 minutes." "A few schools present courses in so-called 'shop mathematics.' "

Agricultural high schools.[4]—These schools are generally public high schools, and have the same entrance requirements and length of course as other high schools. "Their object is to provide such an education for the youth of the rural community as will tend to retain him in that community as an efficient member thereof." The required work in mathematics usually consists of arithmetic and one year each of algebra and plane geometry. It is reported that an attempt is made to make the work in mathematics more practical.

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[1] Mathematics in the Elementary Schools of the United States, p. 156.
[2] Mathematics in the Technical Secondary Schools of the United States, pp. 1–21.
[3] Ibid., p. 9.
[4] Ibid., pp. 29–32.

TABULAR STATEMENTS OF COURSES IN MATHEMATICS IN COMMERCIAL AND INDUSTRIAL SCHOOLS.

The following tables contain, so far as the facts are available, for each type of school in each country the following facts:

The number of years of previous school attendance required for entrance.

The approximate age at entrance.

The number of years in the course.

The number of hours a week spent in the school.

The number of hours a week given to the study of mathematics.

The branches of mathematics studied.

In determining the number of years of previous school attendance and the approximate age at entrance, free use has been made of the tables prepared by Mr. J. C. Brown and published in Bulletin, 1914, No. 45, of the United States Bureau of Education.

Commercial and industrial schools in Austria.

Requirements.	Higher commercial schools.	Industrial continuation schools.	Courses for masters and assistants.	General trade schools.	Trade schools for particular industries.	Schools for the building trades and the mechanical arts.
Years of previous school attendance required.	8	8	8 or more.	6	8	8
Approximate age at entrance..	14	14 or over.	17 or over.	12 or over.	14 or over.	17 or over.
Number of years in course....	4	2	.....	3	3 or 4	1½
Hours per week in school.....	Full time.	Part time.	Part time.	Full time.	Full time.	Full time.
Hours per week for mathematics.	About 5 each year.	.....	.....	.....	.....	.....
Courses in mathematics.....	Arith., alg., geom.	Arith., geom.	Arith., geom.	Arith., geom.	Arith., alg., geom., projection drawing.	Arith., geom., projection drawing.

Requirements.	Schools for master-workmen.	Higher schools for the textile industry.	Higher industrial schools.	Industrial schools for women.	Schools of domestic science.
Years of previous school attendance required.	8 or more.	8	8	8	.....
Approximate age at entrance..	17 or over.	14 or over.	14	14	16
Number of years in course.....	2 or 2½	4	4	2	5 months.
Hours per week in school.....	.....	Full time.	Full time.	.....	.....
Hours per week for mathematics.	.....	.....	1st year, 9–13; 2d, about 7; 3d, 2½ to 4.	2 each year.	2
Courses in mathematics.....	Arith., alg., geom., trig., projection drawing.	Arith., alg., geom., trig., geometrical drawing.	Alg., geom., trig., analytical geom., projection drawing.	Arith.	Arith.

Commercial and industrial schools in Denmark.

Requirements.	Evening commercial schools.	Day commercial schools.	Evening industrial schools.	Day schools for mechanics.	Courses for surveyors and foresters.	Navigation schools.
Years of previous school attendance required.	.....	.....	.....	7	.....	.....
Approximate age at entrance..	.....	.....	.....	.....	.....	.....
Number of years in course.....	3	1	4 winter semesters.	1–2	.....	.....
Hours per week in school.....	.....	30	.....	Full time, apparently.	Full time, apparently.	.....
Hours per week for mathematics.	2	5	.....	1st semester 12; 2d, 6.	.....	.....
Courses in mathematics.....	Commercial arith.	Commercial arith.	Arith., alg., geom., trig., projection drawing.	Arith., alg., trig., geometrical drawing.	Arith., alg., plane and solid geom., analytics calculus.	Arith., geom., trig.

Commercial and industrial schools in Finland.

Requirements.	Schools for commercial employees.	Schools of commerce.	Commercial institutes.	Manual training schools.	Lower and higher trade schools.	Vocational schools.	Industrial schools.
Years of previous school attendance required.	6	6	9	.....	6	6	6, and 1 year in shop.
Approximate age at entrance.	14	16	16 or 17	.....	13 or 14	13 or 14	17 or over.
Number of years in the course.	1 or 2	2	2 or 3	1 or 2	1, 2, or 3	2	2 years of 6 mos. each.
Hours per week in school...	12	.....	.....	.....	Part time.	12 to 20	39 or 40.
Hours per week for mathematics.	.....	.....	.....	.....	.....	.....	
Courses in mathematics.....	Arith.	Arith., geom.	Arith., alg., geom.	Arith.	Arith., alg., descriptive geom.	Arith., alg., geom., descriptive geom.	Arith., alg., geom., descriptive geom., mechanics.

Commercial and industrial schools in France.

Requirements.	Higher primary schools for boys.		Practical schools of commerce and industry.		National vocational schools.	Vocational schools for girls.
	Commercial section.	Industrial section.	Commercial section.	Industrial section.		
Years of previous school attendance required.	7	7	6 or 7	6 or 7	6	6
Approximate age at entrance..	13	13	12 or 13	12 or 13	12 to 15	12 to 15
Number of years in course.....	3	3	3	3	4	3
Hours per week in school.....	28 1st year, 32 2d, 32 3d.	28 1st year, 35 2d, 37 3d.	Full time.	Full time.	40 1st year, 44 2d, 47 3d, 50 4th.	Full time.
Hours per week for mathematics.	4 1st year, 3 2d, 3 3d.	4 1st year, 3 2d, 3 3d.	6 1st year, 5 2d, 3 3d.	6 1st year, 5 2d, 3 3d.	6 1st year, 6 2d, 6 3d, 3½ 4th.	1½ 1st year, 3 2d, 1½ 3d.
Courses in mathematics.....	Arith., alg., geom.	Arith., alg., geom., mechanics.	Arith., alg.	Arith., alg., geom., descriptive geom., mechanics.	Arith., alg., geom., trig., descriptive geom.	Arith., geom.

Commercial and industrial schools in Germany.

Requirements.	Commercial continuation schools.	Commercial preparatory schools.	Higher commercial courses.	Commercial Realschulen.	Industrial continuation schools.	Trade schools for the metal industries.
Years of previous school attendance required.	8	8	9	6	8	8
Approximate age at entrance..	14	14	15	13	14	14 or over.
Number of years in course.....	3	1	1	3	3	2 or 3.
Hours per week in school.....	6 to 12	24 to 33	35	30	6 to 9	Full time.
Hours per week for mathematics.	2	4 to 6	4 to 6	1st and 2d years, 6; 3d year, 5.	1 or 2 each year.	Probably 4 each year.
Courses in mathematics.....	Commercial arith.	Commercial arith.	Commercial arith.	Arith., alg., plane and solid geom., trig.	Arith., alg., geom.	Arith., alg., geom., trig.

	Factory schools.	Evening and Sunday classes for artisans.	Middle technical schools.	Navigation schools.
Years of previous school attendance required...	8	8 plus continuation school.	9	8
Approximate age at entrance.....	14 or over	17 or over	17 or over	.....
Number of years in course.....	2 or 3	.....	1½ to 2½	.....
Hours per week in school.....	Part time.	Part time.	Full time.	.....
Hours per week for mathematics.....	Probably 2 for 2 years.	.....	4 or 5 for 2 years.	.....
Courses in mathematics.....	Arith., alg., geom.	Arith., alg., geom., trig., projection drawing.	Alg., plane and solid geom., trig, analytical geom.	Alg., plane and solid geom., plane and spherical trig.

Commercial and industrial schools in Holland.

Requirements.	Burgeravondscholen.	Schools of design.	Vocational and technical schools.	Navigation schools.
Years of previous school attendance required...	6	6	6	7 or 9
Approximate age at entrance.....	12	12	12	14 to 17
Number of years in course.....	2 to 4	3 to 5	3	2
Hours per week in school.....	6 to 15	8 to 15	40 to 44	Full time.
Hours per week for mathematics.....	1st year 4, 2d 4, 3d 3, 4th 2.	Same as Burgeravondscholen, apparently.	1st year 4, 2d 3, 3d 3.	13, each year.
Courses in mathematics.....	Arith., Alg., mechanics.	Plane and solid geom., descriptive geom.		Solid geom., plane and spherical trig., analytical geom., navigation.

Commercial and industrial schools in Hungary.

Requirements.	Higher commercial schools.	Trade schools.	Higher industrial schools.
Years of previous school attendance required.....	6	8	8, plus 1 year of practice.
Approximate age at entrance.....	14 or 15	13	16
Number of years in course.....	3	3	
Hours per week in school.....	Full time.	Full time.	Full time.
Hours per week for mathematics.....	1st year 6, 2d 5, 3d 6.	1st year 2, 2d 2, 3d 1.	
Courses in mathematics.....	Arith., alg., geom.	Arith., descriptive geom.[1]	Alg., plane and solid geom., trig., descriptive geom.

[1] The courses for watchmakers and *Feinmechaniker* in the trade schools give the same courses in mathematics as the higher industrial schools.

Commercial and industrial schools in Italy.

Requirements.	Practical schools of agriculture.	Higher schools of agriculture.	Schools of mining.	Lower commercial schools.	Intermediate commercial schools.
Years of previous school attendance required.	4	12	Admission by examination.	4	8
Number of years in the course					2, 3, or 4.
Courses in mathematics	Arith., geom.	Arith., alg., geom., mechanics.	Alg., geom., descriptive geom., mechanics.	Arith., Alg., geom.	Arith., Alg., geom.

Commercial and industrial schools in Japan.

Requirements.	Commercial schools, class B.	Commercial schools, class A.	Commercial colleges.	Technical schools of middle grade.
Years of previous school attendance required.	6	9	11	6
Approximate age at entrance.	12	14	17	Average age, 15
Number of years in the course.	3 or less.	4 or 5	3 or 4	3 or 4
Hours per week in school.	Full time.	Full time.	Full time.	Full time.
Hours per week for mathematics.	4 or 5 each year.		1st year, 3; 2d, 2; 3d, 3; 4th, 1.	(See table, p. 67.)
Courses in mathematics	Commercial arith.	Commercial arith., alg., geom.	Math. of finance.	Arith., alg., geom., trig.

Requirements.	High technical schools.	Schools for land surveyors, lower course.	Schools for land surveyors, higher course.
Years of previous school attendance required.	11	11	
Approximate age at entrance.		Average age, 25	Average age, 33
Number of years in the course.	3	1	2
Hours per week in school.	Full time.	Full time.	Full time.
Hours per week for mathematics.	(See table, p. —.)	(See table, p. —.)	(See table, p. 69.)
Courses in mathematics.	Alg., geom., trig., plane and solid analytical geom., calculus, differential equations.	Alg., solid geom., plane and spherical trig., analytical geom., least squares.	Alg., plane and solid analytics, calculus, differential equations, dynamics, least squares.

Commercial and industrial schools in Russia.

Requirements.	Schools for apprentices.	Elementary trade schools.	Trade schools.	Lower technical schools.	Secondary technical schools.
Years of previous school attendance required.				7	
Approximate age at entrance.	12 to 15	12 to 15			
Number of years in the course.	3	4	3	3	4 or less.
Hours per week in school.	Part time.				
Hours per week for mathematics.		1st year, 2; 2d, 1.			
Courses in mathematics.	Arith., geom.	Arith.	Arith., geom., geometrical drawing.	Arith., alg., geom., mechanics, projection drawing.	Alg., geom., trig., analytical geom., mechanics, geometrical drawing.

Commercial and industrial schools in Spain.

Requirements.	Prepatory commercial schools.	Elementary commercial schools.	Higher commercial schools.	Schools of arts and industries.	Navigation schools.
Courses in mathematics.	Arith., alg.	Arith., alg.	Alg., commercial calculation.	Arith., alg., geom., descriptive geom., trig., mechanics.	Arith., alg., geom., trig.

Commercial and industrial schools in Sweden.

Requirements.	Elementary industrial schools.	Middle technical schools.
Years of previous school attendance required	6	9
Approximate age at entrance	14	18
Number of years in the course	2 or 3	3
Hours per week in school	Part time.	Full time.
Hours per week for mathematics	Probably 2 for 2 years.	.....
Courses in mathematics	Arith., alg., geom.	Arith., alg., plane and solid geom., trig., analytical geom., descriptive geom.

Commercial and industrial schools in Switzerland.

Requirements.	Complementary commercial instruction.	Secondary commercial instruction.	Higher schools of commerce.	Schools of administration and for the railway service.
Years of previous school attendance required.	6	6	8	8
Approximate age at entrance	14 or over.	14 or over.	14 or over.	14 or 15
Number of years in the course	3	1 or 2	3 or 4	2 or 3
Hours per week in school	Part time.	Part time.	26	Full time.
Hours per week for mathematics	1 or 2 for 3 years.	3	1st year, 3; 2d, 4; 3d, 3; 4th, 3.	1st year, 6; 2d, 3; 3d, 3.
Courses in mathematics	Commercial arith.	Commercial arith.	Arith., alg., geom., trig.	Arith., alg., geom.

Requirements.	Vocational courses.	Permanent vocational schools.	Middle technical schools.
Years of previous school attendance required.	6 to 8	6 to 8	9
Approximate age at entrance	14	14 or 15	15
Number of years in the course	2 or 3	2, 3, or 4	2½ or 3
Hours per week in school	4 to 7	52 to 56	40
Hours per week for mathematics	2 to 4	4 each year, approximately.	1st year, 12 to 15; 2d, 13 to 16; 3d, 2 to 4.
Courses in mathematics	Arith., geom., projection drawing.	Arith., alg., geom., trig., mechanics, projection drawing.	Arith., alg., geom., trig., analytical geom., calculus, mechanics, descriptive geom., projection drawing.

Commercial and industrial schools in the United States.

Requirements.	Private commercial schools.	Commercial departments in high schools.	Commercial high schools.	Intermediate industrial, preparatory trade, or vocational schools.	Trade schools with day courses.	Apprenticeship schools.
Years of previous school attendance required.	Usually 8	8	8	6 to 8	6 to 8	6 to 8
Approximate age at entrance.	14 or over.	14	14	14	14	14 or over.
Number of years in the course.	1 to 2.	.....	4	.....	.....	.....
Hours per week in school.	Full time.	Full time.	Full time.	Full time.	Full time.	.....
Hours per week for mathematics.	5 for 1 year.	5 for 3 years.	5 for 4 years.	.....	.....	.....
Courses in mathematics.	Commercial arithmetic.	Commercial arith., alg., geom.	Commercial arith., alg., geom.	Shop mathematics.	Arith., alg., geom., trig.	Arith., alg., geom., trig.

Requirements.	Evening schools.	Part-time schools.	Trade schools for the colored races.	Technical schools with day courses.	Manual-training and technical high schools.	Agricultural high schools.
Years of previous school attendance required.	6 or 8.	8	.....	12	8	8
Approximate age at entrance.	Various.	14 to 16.	17	18	14	14
Number of years in the course.	.....	4	4	4	4	4
Hours per week in school.	.....	.....	Full time.	Full time.	Full time.	Full time.
Hours per week for mathematics.	.....	.....	4 for 3 years.	5 for 3 years.	5 for 3 or 4 years.	5 for 3 years.
Courses in mathematics.	Alg., arith., geom., trig., analytical geom., mechanics.	.....	Arith., alg., geom., applied math.	Alg., trig., analytical geom., calculus, mechanics.	Alg., plane and solid geom., trig.	Arith., alg., geom.

NAMES OF TYPES OF SCHOOLS, WITH EQUIVALENTS USED IN THIS REPORT.

In reading such a report as the present, it is often desirable to be able to determine the exact name, in the foreign language, of the schools under consideration. In order to avoid the frequent repetition, in the body of the report, of the names of the schools, the following tables of equivalents have been prepared.

There are given below the names, as they appear in the reports of the International Commission, of the types of schools in the different countries, and the terms used as equivalents in this report:

AUSTRIA.

Höhere Handelsschulen	Higher Commercial Schools.
Gewerbliche Fortbildungsschulen	Industrial Continuation Schools.
Spezialkurse für Meister und Gehilfen	Special Courses for Masters and Assistants.
Allgemeine Handwerkerschulen	General Trade Schools.
Fachschulen für einzelne gewerbliche Zweige.	Trade Schools for Particular Trades.
Bau- und Kunsthandwerkerschulen	Schools for the Building Trades and the Mechanical Arts.
Werkmeisterschulen	Schools for Master Workmen.
Höhere Gewerbeschulen	Higher Industrial Schools.
Höhere Fachschulen für Textilindustrie.	Higher Schools for the Textile Industry.
Frauengewerbeschulen	Industrial Schools for Women.
Koch- und Haushaltungsschulen	Schools for Domestic Science.

DENMARK.

Elementarschulen für Technik, Handel, und Seefahrt.	Elementary Technical, Commercial, and Navigation Schools.
Tagesschule für Bauhandwerker	Day School for Builders.
Tagesschulen für Maschinenkonstrukteure und Elektrotechniker.	Day Schools for Machine Constructors and Electrotechnologists.
Veterinär- und landwirtschaftliche Hochschule.	Veterinary and Agricultural High School.

FINLAND.

Écoles pour les Employeés de Commerce	Schools for Commercial Employees.
Écoles de Commerce	Schools of Commerce.
Instituts Commerciaux	Commercial Institutes.
Écoles Techniques Inférieures	Lower Technical Schools.
Écoles de Travaux Manuels	Manual Training Schools.
Écoles de Métiers Inférieures et Supérieures.	Lower and Higher Trade Schools.
Écoles Professionelles	Vocational Schools.
Écoles Industrielles	Industrial Schools.

FRANCE.

Écoles Primaires Supérieures de Garçons..	Higher Primary Schools for Boys.
Écoles Pratiques de Commerce et d'Industrie.	Practical Schools of Commerce and Industry.
Écoles Nationales Professionelles.....	National Vocational Schools.
Écoles Pratiques de Commerce.....	Practical Schools of Commerce.
Écoles Professionelles et Ménagères.....	Écoles Professionelles et Ménagères.

GERMANY.

Kaufmännische Fortbildungsschulen.....	Commercial Continuation Schools.
Handelsvorschulen.....	Commercial Preparatory Schools.
Höhere Handelskurse.....	Higher Commercial Courses.
Handelsrealschulen.....	Commercial Realschulen.
Gewerbliche Fortbildungsschulen.....	Industrial Continuation Schools.
Fachschulen für die Metallindustrie.....	Trade Schools for the Metal Industries.
Werkschulen.....	Factory Schools.
Abend- und Sonntagsklassen für Handwerker.	Evening and Sunday Classes for Artisans.
Technische Mittelschulen.....	Middle Technical Schools.
Navigationsschulen.....	Navigation Schools.

HOLLAND.

Burgeravondscholen.....	Burgervondscholen.
Écoles Professionelles.....	Vocational Schools.
Écoles de Dessin.....	Schools of Design.
Écoles Techniques.....	Technical Schools.
Écoles de Marine.....	Navigation Schools.
Enseignement Moyen Technique.....	Middle Technical Instruction.
Écoles Professionelles pour Filles.....	Vocational Schools for Girls.

HUNGARY.

Höhere Handelsschulen.....	Higher Commercial Schools.
Gewerbliche Fachschulen.....	Trade Schools.
Höhere Gewerbeschulen.....	Higher Industrial Schools.

ITALY.

Scuole Agraria Pratiche.....	Practical Schools of Agriculture.
Scuole Agraria Superiori.....	Higher Schools of Agriculture.
Scuole Minerarie.....	Schools of Mining.
Scuole di Commercio Inferiori.....	Lower Commercial Schools.
Scuole di Commercio Superiori.....	Higher Commercial Schools.

RUSSIA.

Écoles d'Apprentis.....	Schools for Apprentices.
Écoles Élémentaires de Métiers.....	Elementary Trade Schools.
Écoles de Métiers.....	Trade Schools.
Écoles Techniques Inférieures.....	Lower Technical Schools.
Écoles Techniques Secondaires.....	Secondary Technical Schools.

SWEDEN.

Elementartechnische Gewerbeschulen..	Elementary Industrial Schools.
Technische Mittelschulen.....	Middle Technical Schools.

SWITZERLAND.

Enseignement Commercial Complémentaire.	Complementary Commercial Instruction.
Enseignement Commercial Secondaire..	Secondary Commercial Instruction.
Écoles Supérieures de Commerce.....	Higher Schools of Commerce.
Écoles d'Administration et de Chemins de Fer.	Schools of Administration and for the Railway Service.
Cours Professionels.....	Vocational Courses.
Écoles Professionelles Permanentes....	Permanent Vocational Schools.
Écoles Techniques Moyennes.....	Middle Technical Schools.

BULLETIN OF THE BUREAU OF EDUCATION.

[NOTE.—With the exceptions indicated, the documents named below will be sent free of charge upon application to the Commissioner of Education, Washington, D. C. Those marked with an asterisk (*) are no longer available for free distribution, but may be had of the Superintendent of Documents, Government Printing Office, Washington, D. C., upon payment of the price stated. Remittances should be made in coin, currency, or money order. Stamps are not accepted. Numbers omitted are out of print.]

1906.

*No. 3. State school systems: Legislation and judicial decisions relating to public education, Oct. 1, 1904, to Oct. 1, 1906. Edward C. Elliott. 15 cts.

1908.

*No. 5. Education in Formosa. Julean H. Arnold. 10 cts.
*No. 6. The apprenticeship system in its relation to industrial education. Carroll D. Wright. 15 cts.
No. 8. Statistics of State universities and other institutions of higher education partially supported by the State, 1907–1908.

1909.

*No. 1. Facilities for study and research in the offices of the United States Government in Washington. Arthur T. Hadley. 10 cts.
No. 2. Admission of Chinese students to American colleges. John Fryer.
*No. 3. Daily meals of school children. Caroline L. Hunt. 10 cts.
No. 5. Statistics of public, society, and school libraries in 1908.
*No. 6. Instruction in the fine and manual arts in the United States. A statistical monograph. Henry T. Bailey. 15 cts.
No. 7. Index to the Reports of the Commissioner of Education, 1867–1907.
*No. 8. A teacher's professional library. Classified list of 100 titles. 5 cts.
*No. 9. Bibliography of education for 1908–9. 10 cts.
No. 10. Education for efficiency in railroad service. J. Shirley Eaton.
*No. 11. Statistics of State universities and other institutions of higher education partially supported by the State, 1908–9. 5 cts.

1910.

*No. 1. The movement for reform in the teaching of religion in the public schools of Saxony. Arley B. Show. 5 cts.
No. 2. State school systems: III. Legislation and judicial decisions relating to public education, Oct. 1, 1908, to Oct. 1, 1909. Edward C. Elliott.
*No. 5. American schoolhouses. Fletcher B. Dresslar. 75 cts.

1911.

*No. 1. Bibliography of science teaching. 5 cts.
*No. 2. Opportunities for graduate study in agriculture in the United States. A. C. Monahan. 5 cts.
*No. 3. Agencies for the improvement of teachers in service. William C. Ruediger. 15 cts.
No. 4. Report of the commission appointed to study the system of education in the public schools of Baltimore. 10 cts.
*No. 5. Age and grade census of schools and colleges. George D. Strayer. 10 cts.
*No. 6. Graduate work in mathematics in universities and in other institutions of like grade in the United States. 5 cts.
No. 7. Undergraduate work in mathematics in colleges and universities.
No. 9. Mathematics in the technological schools of collegiate grade in the United States.
*No. 13. Mathematics in the elementary schools of the United States. 15 cts.
*No. 14. Provision for exceptional children in the public schools. J. H. Van Sickle, Lightner Witmer, and Leonard P. Ayres. 10 cts.
*No. 15. Educational system of China as recently reconstructed. Harry E. King. 10 cts.
No. 19. Statistics of State universities and other institutions of higher education partially supported by the State, 1910–11.

1912.

*No. 1. A course of study for the preparation of rural-school teachers. F. Mutchler and W. J. Craig. 5 cts.
*No. 3. Report of committee on uniform records and reports. 5 cts.
*No. 4. Mathematics in technical secondary schools in the United States. 5 cts.
*No. 5. A study of expenses of city school systems. Harlan Updegraff. 10 cts.
*No. 6. Agricultural education in secondary schools. 10 cts.
*No. 7. Educational status of nursing. M. Adelaide Nutting. 10 cts.

*No. 8. Peace day. Fannie Fern Andrews. 5 cts. [Later publication, 1913, No. 12. 10 cts.]
*No. 9. Country schools for city boys. William S. Myers. 10 cts.
No. 11. Current educational topics, No. 1.
*No. 13. Influences tending to improve the work of the teacher of mathematics. 5 cts.
*No. 14. Report of the American commissioners of the international commission on the teaching of mathematics. 10 cts.
*No. 17. The Montessori system of education. Anna T. Smith. 5 cts.
*No. 18. Teaching language through agriculture and domestic science. M. A. Leiper 5 cts.
*No. 19. Professional distribution of college and university graduates. Bailey B. Burritt. 10 cts.
No. 22. Public and private high schools.
*No. 23. Special collections in libraries in the United States. W. D. Johnston and I. G. Mudge. 10 cts.
No. 26. Bibliography of child study for the years 1910–11.
No. 27. History of public-school education in Arkansas. Stephen B. Weeks.
*No. 28. Cultivating school grounds in Wake County, N. C. Zebulon Judd. 5 cts.
No. 29. Bibliography of the teaching of mathematics, 1900–1912. D. E. Smith and Chas. Goldziher.
No. 30. Latin-American universities and special schools. Edgar E. Brandon.

1913.

No. 1. Monthly record of current educational publications, January, 1913.
*No. 2. Training courses for rural teachers. A. C. Monahan and R. H. Wright. 5 cts.
*No. 3. The teaching of modern languages in the United States. Charles H. Handschin. 15 cts.
*No. 4. Present standards of higher education in the United States. George E. MacLean. 20 cts.
No. 5. Monthly record of current educational publications, February, 1913.
*No. 6. Agricultural instruction in high schools. C. H. Robison and F. B. Jenks. 10 cts.
*No. 7. College entrance requirements. Clarence D. Kingsley. 15 cts.
*No. 8. The status of rural education in the United States. A. C. Monahan. 15 cts.
No. 11. Monthly record of current educational publications, April, 1913.
*No. 12. The promotion of peace. Fannie Fern Andrews. 10 cts.
*No. 13. Standards and tests for measuring the efficiency of schools or systems of schools. 5 cts.
No. 15. Monthly record of current educational publications, May, 1913.
*No. 16. Bibliography of medical inspection and health supervision. 15 cts.
*No. 18. The fifteenth international congress on hygiene and demography. Fletcher B. Dresslar. 10 cts.
No. 19. German industrial education and its lessons for the United States. Holmes Beckwith.
*No. 20. Illiteracy in the United States. 10 cts.
No. 21. Monthly record of current educational publications, June, 1913.
*No. 22. Bibliography of industrial, vocational, and trade education. 10 cts.
*No. 23. The Georgia club at the State Normal School, Athens, Ga., for the study of rural sociology. E. C. Branson. 10 cts.
*No. 24. A comparison of public education in Germany and in the United States. Georg Kerschensteiner. 5 cts.
*No. 25. Industrial education in Columbus, Ga. Roland B. Daniel. 5 cts.
*No. 26. Good roads arbor day. Susan B. Sipe. 10 cts.
*No. 28. Expressions on education by American statesmen and publicists. 5 cts.
*No. 29. Accredited secondary schools in the United States. Kendric C. Babcock. 10 cts.
*No. 30. Education in the South. 10 cts.
*No. 31. Special features in city school systems. 10 cts.
No. 32. Educational survey of Montgomery County, Md.
*No. 34. Pension systems in Great Britain. Raymond W. Sies. 10 cts.
*No. 35. A list of books suited to a high-school library. 15 cts.
*No. 36. Report on the work of the Bureau of Education for the natives of Alaska, 1911–12. 10 cts.
No. 37. Monthly record of current educational publications, October, 1913.
*No. 38. Economy of time in education. 10 cts.
No. 39. Elementary industrial school of Cleveland, Ohio. W. N. Hallmann.
*No. 40. The reorganized school playground. Henry S. Curtis. 10 cts.
*No. 41. The reorganization of secondary education. 10 cts.
No. 42. An experimental rural school at Winthrop College. H. S. Browne.
*No. 43. Agriculture and rural-life day; material for its observance. Eugene C. Brooks. 10 cts.
*No. 44. Organized health work in schools. E. B. Hoag. 10 cts.
No. 45. Monthly record of current educational publications, November, 1913.
*No. 46. Educational directory, 1913. 15 cts.
*No. 47. Teaching material in Government publications. F. K. Noyes. 10 cts.
*No. 48. School hygiene. W. Carson Ryan, jr. 15 cts.
No. 49. The Farragut School, a Tennessee country-life high school. A. C. Monahan and Adams Phillips.
*No. 50. The Fitchburg plan of cooperative industrial education. M. R. McCann. 10 cts.
*No. 51. Education of the immigrant. 10 cts.
*No. 52. Sanitary schoolhouses. Legal requirements in Indiana and Ohio. 5 cts.
No. 53. Monthly record of current educational publications, December, 1913.
No. 54. Consular reports on industrial education in Germany.

No. 55. Legislation and judicial decisions relating to education, Oct. 1, 1909, to Oct. 1, 1912. James C. Boykin and William R. Hood.
No. 58. Educational system of rural Denmark. Harold W. Foght.
No. 59. Bibliography of education for 1910–11.
No. 60. Statistics of State universities and other institutions of higher education partially supported by the State, 1912–13.

1914.

*No. 1. Monthly record of current educational publications, January, 1914. 5 cts.
No. 2. Compulsory school attendance.
*No. 3. Monthly record of current educational publications, February, 1914. 5 cts.
No. 4. The school and the start in life. Meyer Bloomfield.
No. 5. The folk high schools of Denmark. L. L. Friend.
No. 6. Kindergartens in the United States.
No. 7. Monthly record of current educational publications, March, 1914.
*No. 8. The Massachusetts home-project plan of vocational agricultural education. R. W. Stimson. 15 cts.
No. 9. Monthly record of current educational publications, April, 1914.
No. 10. Physical growth and school progress. B. T. Baldwin.
*No. 11. Monthly record of current educational publications, May, 1914. 5 cts.
*No. 12. Rural schoolhouses and grounds. F. B. Dresslar. 50 cts.
No. 13. Present status of drawing and art in the elementary and secondary schools of the United States. Royal B. Farnum.
No. 14. Vocational guidance.
No. 15. Monthly record of current educational publications. Index.
No. 16. The tangible rewards of teaching. James C. Boykin and Roberta King.
No. 17. Sanitary survey of the schools of Orange County, Va. Roy K. Flannagan.
No. 18. The public-school system of Gary, Ind. William P. Burris.
No. 19. University extension in the United States. Louis E. Reber.
No. 20. The rural school and hookworm disease. J. A. Ferrell.
No. 21. Monthly record of current educational publications, September, 1914.
No. 22. The Danish folk high schools. H. W. Foght.
No. 23. Some trade schools in Europe. Frank L. Glynn.
No. 24. Danish elementary rural schools. H. W. Foght.
No. 25. Important features in rural school improvement. W. T. Hodges.
No. 26. Monthly record of current educational publications, October, 1914.
*No. 27. Agricultural teaching. 15 cts.
No. 28. The Montessori method and the kindergarten. Elizabeth Harrison.
No. 29. The kindergarten in benevolent institutions.
*No. 30. Consolidation of rural schools and transportation of pupils at public expense. A. C. Monahan. 25 cts.
*No. 31. Report on the work of the Bureau of Education for the natives of Alaska. 25 cts.
No. 32. Bibliography of the relation of secondary schools to higher education. R. L. Walkley.
No. 33. Music in the public schools. Will Earhart.
No. 34. Library instruction in universities, colleges, and normal schools. Henry R. Evans.
No. 35. The training of teachers in England, Scotland, and Germany. Charles H. Judd.
*No. 36. Education for the home—Part I. General statement. B. R. Andrews. 10 cts.
*No. 37. Education for the home—Part II. State legislation, schools, agencies. B. R. Andrews. 30 cts.
No. 38. Education for the home—Part III. Colleges and universities. B. R. Andrews.
No. 39. Education for the home—Part IV. Bibliography, list of schools. B. R. Andrews.
No. 40. Care of the health of boys in Girard College, Philadelphia, Pa.
No. 41. Monthly record of current educational publications, November, 1914.
No. 42. Monthly record of current educational publications, December, 1914.
No. 43. Educational directory, 1914–15.
No. 44. County-unit organization for the administration of rural schools. A. C. Monahan.
No. 45. Curricula in mathematics. J. C. Brown.
No. 46. School savings banks. Mrs. Sara L. Oberholtzer.
No. 47. City training schools for teachers. Frank A. Manny.
No. 48. The educational museum of the St. Louis public schools. C. G. Rathman.
No. 49. Efficiency and preparation of rural school-teachers. H. W. Foght.
No. 50. Statistics of State universities and State colleges.

1915.

No. 1. Cooking in the vocational school. Iris P. O'Leary.
No. 2. Monthly record of current educational publications, January, 1915.
No. 3. Monthly record of current educational publications, February, 1915.
No. 4. The health of school children. W. H. Heck.
No. 5. Organization of State departments of education. A. C. Monahan.
No. 6. A study of colleges and high schools.

No. 7. Accredited secondary schools in the United States. Samuel P. Capen.
No. 8. Present status of the honor system in colleges and universities. Bird T. Baldwin.
No. 9. Monthly record of current educational publications, March, 1915.
No. 10. Monthly record of current educational publications, April, 1915.
No. 11. A statistical study of the public school systems of the southern Appalachian Mountains. Norman Frost.
No. 12. History of public school education in Alabama. Stephen B. Weeks.
No. 13. The schoolhouse as the polling place. E. J. Ward.
No. 14. Monthly record of current educational publications, May, 1915.
No. 15. Monthly record of current educational publications. Index, Feb., 1914–Jan., 1915.
No. 16. Monthly record of current educational publications, June, 1915.
No. 17. Civic education in elementary schools as illustrated in Indianapolis. Arthur W. Dunn.
No. 18. Legal education in Great Britain. H. S. Richards.
No. 19. Statistics of agricultural, manual training, and industrial schools, 1913–14.
No. 20. The rural school system of Minnesota. H. W. Foght.
No. 21. Schoolhouse sanitation. William A. Cook.
No. 22. State versus local control of elementary education. T. L. MacDowell.
No. 23. The teaching of community civics.
No. 24. Adjustment between kindergarten and first grade. Luella A. Palmer.
No. 25. Public, society, and school libraries.
No. 26. Secondary schools in the States of Central America, South America, and the West Indies. Anna T. Smith.
No. 27. Opportunities for foreign students at colleges and universities in the United States. Samuel P. Capen.
No. 28. The extension of public education. Clarence A. Perry.
No. 29. The truant problem and the parental school. James S. Hiatt.
No. 30. Bibliography of education for 1911–12.
No. 31. A comparative study of the salaries of teachers and officers.
No. 32. The school system of Ontario. H. W. Foght.
No. 33. Problems of vocational education in Germany. Geo. E. Myers.
No. 34. Monthly record of current educational publications, September, 1915.

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UNITED STATES BUREAU OF EDUCATION

BULLETIN, 1915, NO. 36 WHOLE NUMBER 669

FREE TEXTBOOKS AND STATE UNIFORMITY

By A. C. MONAHAN
UNITED STATES BUREAU OF EDUCATION

WASHINGTON
GOVERNMENT PRINTING OFFICE
1915

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PREFACE.

By P. P. CLAXTON, *Commissioner of Education.*

In the elementary and secondary schools of the United States textbooks play a more important part than in similar schools of most other countries. In almost all subjects teachers and pupils depend on textbooks both for facts and for order or presentation. Few teachers correct errors in statements of facts; fewer still attempt to improve or are able to improve faulty arrangement of material or illogical or unpedagogical development of subjects treated. Lessons are assigned, learned, and recited in the order given in the books. The adoption of textbooks for use in any school or system of schools therefore determines in large degree the courses of study. Of the three factors in every school—building and equipment, teachers, and textbooks—it can hardly be said that textbooks constitute the factor of least importance. Frequently the textbook is the teacher, while the man or woman called the teacher is only a kind of taskmaster or policeman driving the children through the pages of the textbook. This is especially true of a large number of one-room country schools in which the teachers "hear the lessons" of from 25 to 35 classes a day, giving from 5 to 10 or 15 minutes to each lesson. It is therefore a matter of great importance that the best possible textbooks on all subjects of school study be put into the hands of teachers and children, and the methods by which this is attempted in the several States, cities, and individual schools must have interest for all school officers.

The cost of textbooks, like the cost of any other part of the schools, is also a matter of great interest, about which people at large have little accurate information and about which there is much wild speculation. It is frequently stated that the annual cost of textbooks for use in the public schools of some State of average size is many millions of dollars, and the legislators are told that by some new scheme of adoption and purchase of textbooks several millions might be saved annually to taxpayers or to parents. A careful study of the subject, however, shows that the total value of all textbooks manufactured and sold in the United States is not more than eighteen millions of dollars a year, and that the cost of textbooks for eighteen and one-half million children enrolled in the public elementary and higher schools of the United States is not more than fifteen million dollars a year, an average of about 80 cents for each child. This shows that the cost of textbooks is approximately 2 per cent of the total cost of the schools. If the value of the time of the children be counted as a part of the cost of education, then the cost of textbooks is only a fraction of 1 per cent of the total cost.

In view of the very important part which textbooks play in our schools and the insignificance of their cost as compared with the total cost of education, it would seem to be utmost folly to adopt books upon any other consideration except that of merit, or to fail to provide a means by which all children in the schools may be supplied promptly with all the books needed. Only in this way may we hope to obtain satisfactory returns from the time, money, and energy expended on the schools. When school boards remember that a difference of 10 per cent in the cost of textbooks means a difference of less than one dollar in a thousand of the total cost of education, they will hardly adopt inferior books or rely on any means of supplying books which involves any unusual risk of forcing inferior books upon the schools.

In their efforts to find the best methods for selecting textbooks and getting them into the schools, school officers and people will find much help in the results of a study of this subject made by Mr. A. C. Monahan, this bureau's specialist in rural school administration.

FREE TEXTBOOKS AND STATE UNIFORMITY.

FREE TEXTBOOKS.

Furnishing textbooks at the expense of the community, free to the individual school children, is not a new idea in the United States. It began as a movement in city school administration nearly a century ago. Philadelphia made provisions for free textbooks in 1818. Other cities, principally in New Jersey, Pennsylvania, New York, and Massachusetts, soon followed. A list is included in this section, compiled from data published in the Report of the Commissioner of Education for 1902,[1] giving the names of the larger cities and the dates when free textbooks were adopted. Only those are included which furnished books free before 1884, the year the first State-wide adoption was made. In addition it should be remembered that many smaller cities furnished free books before 1884.

Cities among the 159 largest in the United States adopting free textbooks previous to 1884.

Philadelphia, Pa.	1818	Wilmington, Del.	1875
Jersey City, N. J.	1830	Johnstown, Pa.	1875
Newark, N. J.	1838	Woonsocket, R. I.	1877
Elizabeth, N. J.	1850	New York, N. Y.	1878
Hoboken, N. J.	1855	Lowell, Mass.	1881
Charleston, S. C.	1856	Yonkers, N. Y.	1882
Paterson, N. J.	1860	La Crosse, Wis.	1882
Chester, Pa.	1864	Holyoke, Mass.	1883
Passaic, N. J.	1870	Camden, N. J.	1883
Fall River, Mass.	1874		

Massachusetts was the first State to pass a mandatory State-wide free-textbook law; this became effective in 1884. Before this date 16 towns were furnishing free books. The dates when similar laws were passed in the other 14 States where mandatory legislation is now in force are given in the table on page 10.

The movement for free textbooks is a logical part of the movement for free education. The idea that every boy and girl in the United States shall have an opportunity for an elementary and secondary school education seems to be firmly established; also the idea that the support of the schools where this opportunity is given shall be

[1] See Report of Commissioner of Education, 1902, vol. 2, page 2390. The list there given is of the 159 cities in the United States with a population of 25,000 or over in 1900 which had free textbooks in 1902. The dates of adoption and the grades in which books were supplied are also given. According to this source 93 of the 159 cities furnished free textbooks.

placed not wholly upon the children or their parents, but upon the community or State. The necessity of popular education in a democratic government like that of the United States and of the various States is so generally recognized that compulsory education laws have been passed in all but two of the States, and comparatively little complaint is now heard from taxpayers who are required to assist both through direct and indirect taxation in the support of schools for the children compelled by law to attend. Under the general system of education in the United States the three principal factors are the school plant, the teacher, and the textbook. The textbook is undoubtedly of much greater importance than it should be, but it will hold its position of importance at least as long as the present large proportion of untrained teachers are employed in the public school systems. The untrained and the partially trained teacher must "lean" on the textbook; he or she must rely upon it both for subject matter and for method of teaching. It is important, therefore, that good books, selected by competent authority, be in the hands of all children, rich and poor alike. In no other way can this requirement be met except through free books. There are many children too poor to pay for books, and many others to whom the cost is such an important item that school authorities hesitate to change the books in use even when much better results might be obtained by a change. It is true that, in many States which have not adopted free textbooks, laws have been passed requiring local school authorities to furnish books free to indigent children. This, on the whole, has proved unsatisfactory; it marks as "charity pupils" some who wish to be independent, and it is a direct encouragement to others a little above the "indigent" class to use influence with school authorities to obtain free books.

The movement for free textbooks is also a logical part of a movement for compulsory education. Legal enactments are provided to require children to attend school. Their attendance is of little value unless the children have textbooks. If their parents are unable to buy books for them, or are unwilling to do so, or fail to provide books for the opening days of the school, the work of the school is greatly delayed. A few pupils without books hold the entire class back.

In any educational system where the textbooks are of so much importance as they are in the United States, supplementary books must be furnished. With the untrained teacher using but one textbook, the pupil acquires little information except that included in the book. The instructional work of the school consists largely of the study of textbooks on the part of the pupils, and the hearing of the lessons on the part of the teacher. A general appreciation that the teacher must not rely upon one book is developing. This means that supplementary books must be furnished. Under the

free textbook system boards, of course, have authority to purchase such books; under any other system it is difficult to obtain them.

The principal arguments advanced in favor of free textbooks are: (1) Poor children whose parents are unable to purchase books, or are unable to do so without great sacrifice, may attend school as well equipped in this respect as the richer children; (2) uniformity of textbooks in each school administrative district is secured; (3) texts may be changed with little inconvenience whenever changes are desirable; (4) additional textbooks and supplementary books may be supplied; (5) school work is not delayed at the beginning of the school year while parents obtain books for their children.

It is claimed also that books purchased by school boards, because purchased in quantities, cost less than those bought by individual parents. This is undoubtedly true if only the same number of books is purchased. Under the free textbook system more different books are usually obtained as basic texts and as supplementary books, and changes are made more frequently; on the other hand, books belonging to the school are in more nearly constant use as different classes and different divisions use the same books. It is therefore probable that the total investment is about the same. Also it is probable that the total annual per capita expenditure for books in a State with free textbooks is about the same as in a State where children or parents purchase their own books. Conclusive data to prove this statement do not seem to be available, but figures are given later which support this statement. In examining these figures, it must be remembered that most of the free-textbook States maintain a larger proportional number of high schools than most of the other States, and that the cost of books given includes those for high schools as well as those for elementary schools. This, of course, makes the per capita cost higher than it would be otherwise.

The principal arguments advanced against free books and in favor of the pupils purchasing their own books are: (1) Parents and pupils are made to realize that they can not become wholly dependent on the State, but must continue to assume some of the responsibilities of education; (2) on account of the cost, greatly increased school taxes would be necessary or the amount available for salaries and other expenses would be decreased; (3) children should not be required to use books soiled by other children as they are objectionable to the majority of children and parents both for esthetic and sanitary reasons; (4) by purchasing textbooks home libraries may be built up;[1] (5) books furnished free are not cared for as are those owned by the pupils. On the other hand, because the free textbooks

[1] This does not always follow; second-hand books are sold by one child to another; and when changes in textbooks are made, publishers allow an exchange price. So many of the old books are gathered up in this way that relatively few home libraries of textbooks result.

are public property, intrusted to the pupil, to be paid for if damaged or lost, and frequently inspected by the teachers, it is claimed that they are as well or better cared for. Testimony collected from 39 cities furnishing free textbooks, on this point, is contained in the annual report of the Commissioner of Education for 1902, volume 1, page 639. The great majority reported that books are apparently as well cared for as under the individual ownership plan. The care the books receive depends entirely upon the way in which the system is managed.

The consensus of opinion among teachers, superintendents, and school authorities wherever free textbooks have been furnished to children seems to be strongly in favor of the system. The reports are practically unanimous that the plan is successful. Reference has been made to an inquiry made a few years ago among cities in the United States furnishing free books. This inquiry asked for information as to whether the plan was generally satisfactory; 74 cities reported yes, six cities partially, and no cities reported no.

A Massachusetts official education report gives the following as some of the advantages of the free textbook system as determined by many years of free texts in the State:

Experience has brought some of the benefits of the free textbook system into well-defined and conspicuous prominence, as, for instance, the following:

1. The removal of a serious burden of expense from parents.
2. The ending of the friction that so often arises when parents with old books in possession are called upon to buy new.
3. The banishing of obnoxious distinctions between those who can and those who can not afford to buy their own books.
4. A more generous and varied supply of textbooks at school, with uniformity wherever desirable.
5. Greater ease in keeping this supply fresh and modern.
6. Increased respect for books, as shown in the care of them.
7. Great saving in time and energy, because of having books on hand, in ample supply, when terms begin or new subjects are taken up.
8. A larger and more permanent attendance upon the public schools.
9. A closer approach to the ideal of a free public-school system.

The division of education of the Russell Sage Foundation in 1912 questioned 20 State superintendents, in States in which free textbooks are furnished to all or the larger portion of the children, with respect to the effect of the free textbooks on educational efficiency. The results of the inquiry are as follows:[1]

In no single case is there any movement looking toward the repeal of the free textbook law.

Each one of the 20 State superintendents testifies that free textbooks enhance the efficiency of the teaching in the public schools.

[1] Russell Sage Foundation. Division of education. A comparative study of public-school systems in the forty-eight States. New York, 1912.

Seventeen of them testify that the free textbook system tends to prolong the school life of the child. The other three have no data on which to base answers.

Fourteen of the 20 testify that the free textbook system makes the adoption of new textbooks easier. In the other 6 cases new adoptions are regulated by law and so are not affected.

In a similar way 14 superintendents wrote that the free textbook system has no apparent tendency to take away from the child the pride of personal ownership which might come through having privately bought books.

School books bought by the community cost the community about 20 per cent less than they do when they are bought by individuals.

COST OF TEXTBOOKS.

There is a fear that free textbooks will add greatly to the cost of the public-school system and will greatly increase the rate of taxation for school purposes. In districts where the rate is already high there is fear that compulsory free books will result in lower salaries of the teaching force. It is an unnecessary fear for, as a matter of fact, the cost of the books is a relatively small item in the total expenditure for school purposes. Greatly exaggerated ideas prevail concerning the total number of textbooks sold in the United States each year and the annual profits resulting from such sales. Confidential data have been obtained by the Bureau of Education from 43 textbook publishers in the United States relative to their total sales for 1913. This list of 43 includes practically all of the textbook publishers in the United States whose business is more than purely local. They handle probably 99 per cent of the total textbook business. These publishers submitted figures stating their total sales of textbooks for use in public schools and their total sales for both public and private schools for the year 1913. The aggregate for public schools, elementary and high, amounted to $14,261,768.25.[1] The total enrollment in public elementary and high schools for the year was approximately 18,609,040. Excluding the elementary school enrollment of California, as California prints her own elementary books,[2] the number becomes 18,213,786. Therefore, for each child enrolled in the public schools in the United States the total annual sale of textbooks is 78.3 cents. The total expenditure per child for textbooks is greater than this amount by from 10 to 15 per cent, as local dealers receive a commission on sales fixed in many States by legislation at the per cents given. The cost of textbooks is, therefore, but little more than 2 per cent of the total cost of maintenance, support, and equipment. The sale per child on the school population basis (5–18 years of age) is 56.6 cents; the annual per capita sale of textbooks on the total population basis is less than

[1] The aggregate for all schools, both public and private, amounted to $17,274,030.

[2] Kansas also now prints many of the textbooks used in the State; the plan, however, was not in operation in 1913.

15 cents. Definite data in regard to the cost in free textbook States are included in the table below.

TABLE 1.—*Per capita cost of textbooks based on total school enrollment in free-textbook States and in the District of Columbia.*

	Date of adoption.	Total cost of textbooks, 1913–14.	Per capita cost based on enrollment.	Percentage of cost of textbooks to total cost of schools.
Arizona	1913	[1] $102,034.00	[1] $2.43	.....
California	1913	.....	.....	.....
Delaware	1898	.....	.....	.....
District of Columbia	1891	[2] 34,519.16	[2] .692	1.14
Maine	1859	122,477.00	.96	3.40
Maryland	1896	166,426.00	.82	3.34
Massachusetts	1884	453,256.00	.79	1.93
Nebraska	1891	[3] 300,000.00	1.00	3.25
Nevada	1913	[3] 25,000.00	[1] 2.39	.....
New Hampshire	1899	50,318.00	.92	2.72
New Jersey	1894	405,714.00	.81	1.78
Pennsylvania	1893	1,159,614.00	.82	2.49
Rhode Island	1893	102,851.79	1.22	3.78
Utah	1904	186,202.00	[4] 1.93	4.62
Vermont	1895	50,017.00	.76	2.58
Wyoming	1899	36,500.00	1.25	3.45

[1] This figure is for the first year with free texts, and is therefore the introductory cost. The annual cost will be from one-fourth to one-half of this amount.
[2] Elementary schools only.
[3] Estimate by State superintendent of public instruction.
[4] The high per capita cost of free textbooks for 1913–14 was due to the fact that this was the year of changing textbooks, and heavy purchases were, therefore, made. The per capita cost, as stated, was $1.93, totaling $186,202 for the year. Adoptions were made for five years, and when the cost for the remaining four years is ascertained the average will be much lower. The cost for 1910–11 was 65 cents per capita; for 1911–12, 58 cents.

Comparison of these figures and others representing the cost in States where free textbooks are not furnished may be made from the data in the following pages, obtained from various authentic sources, principally from the managers of the State depositories. All of the State depositories were asked by the bureau to submit figures showing their total sales for public-school textbooks each year for the past five years. Some have done so and others have not, principally because in many States the textbook business is but a part of a general business, and individual accounts are not kept from which the exact amount of textbook sales can be obtained without considerable work. In reviewing the figures given it must be remembered that in nearly all States books may be purchased directly from the publishers by sending cash to the main offices. Books are then sent by mail or express, and a record of their sale would not appear in the office of the State book depositories. The per capita sales figures presented are, therefore, undoubtedly lower than the actual sales. However, from them an estimate may be made approximating closely the amount of money spent for public-school textbooks by adding 10 to 15 per cent for local commissions.

The State depository of Virginia is the Virginia Book Co., located at Richmond. The manager gives the following figures for the list

value of its sales of public-school textbooks for four years: July 1, 1911, to June 30, 1912, $146,849.46; July 1, 1912, to June 30, 1913, $265,617.77; July 1, 1913, to June 30, 1914, $223,064.94; July 1, 1914, to May 29, 1915, $215,688.81.

This makes the average annual sale $212,805.25. The school enrollment was 409,825 in 1911–12 and 427,937 in 1912–13. Later figures have not yet been announced by the State department of education. The per capita sale based on the number of children enrolled was approximately 36 cents in 1911–12 and 62 cents in 1912–13. The enrollment includes both white and negro children; the amount expended by white children was undoubtedly much greater than these figures, the amount by negroes much less.

The State depository of Nevada (Gray, Reid, Wright Co.) reports the average annual sales of elementary-school textbooks for the past five years as $10,938. This is the cost to the various districts, or, in other words, the retail figures. The per capita sale on the basis of enrollment was from 90 to 98 cents.

The Charles Ilfeld Co. of Albuquerque, N. Mex., as State depository, sells approximately 90 per cent of the textbooks used in the State. The firm states that the total amount paid publishers by it for elementary-school textbooks for four years (since 1911) amounts to a little over $117,000. The firm estimates that the total expenditure annually in the State for all elementary textbooks from all sources is close to $30,000. This is approximately 50 cents per child on the enrollment basis. This estimate is undoubtedly too low.

No report from the Oklahoma depository was received by the Bureau, but Prof. O. E. Klingaman, of the State University of Iowa, in a recent article published in the January issue of the Iowa Journal of History and Politics on textbook legislation in Iowa, presents figures relative to the total sales of textbooks in Oklahoma obtained from the Oklahoma Book Co. The Oklahoma Book Co. is the State depository, and all textbooks used in the State are obtained from it. The total sales for a five-year period beginning in 1909, according to data submitted by the company to Prof. Klingaman, were approximately $250,000 annually. The average amount expended per child per year was, therefore, 57 cents. As in Virginia, the expenditure per white child was undoubtedly greater than this, and per negro child much less.

The Kansas Book Co. (State depository) reports the net sales of State-adopted books as follows: 1909–10, $198,253.32; 1910–11, $170,410.24; 1911–12, $144,887.17; 1912–13, $369,758.37; 1913–14, $179,818.78. "The largely increased sales of 1909–10 and 1912–13 were due to the fact that new adoptions were put in in these years. Under the laws of Kansas the dealer was permitted to add 10 per

cent for his commission, and so the total cost to pupils would be increased by 10 per cent on above amounts."

The average annual enrollment in elementary schools for these years was from 360,000 to 370,000. The average expenditure for these four school years, which includes 1912–13 with very large disbursements on account of new adoptions, was approximately 58 cents per capita on the school-enrollment basis. The cost to the children would be 10 per cent more, or approximately 64 cents.

The J. K. Gill Co. of Portland, Oreg., submits the following:

Sales of school books in the State of Oregon for the years 1911–1914, inclusive.

Year.	Grade books.	High school.	Total.
1911	$84,200.25	$33,730.52	$117,939.77
1912	76,057.50	30,655.65	106,713.15
1913	220,883.50	66,457.00	287,340.50
1914	95,722.60	48,764.90	144,487.50

The above figures include the textbooks that are regularly adopted for use in the State, and which are sold by contract made with the State board of education, by the various publishers. The Gill Co. serves as a depository for the supplying of these books at the contract prices.

In addition to the above, a good many "supplementary" texts, particularly in reading, are sold. These sales amounted to $23,500, $21,350, $25,000, $25,000, for the years between 1911 and 1914.

The enrollment in Oregon in all public schools was as follows: 1910–11, 118,412; 1911–12, 139,520; 1912–13, 145,488. On the basis of school enrollment the per capita expenditure is, therefore, approximately $1.06. This includes the sales for 1913, the year of new adoptions, with extra large sales on this account. Adoptions are made every six years.

The State depository of Alabama is a department of a mercantile establishment, Loveman, Joseph & Loeb. They report the total sales of graded textbooks of the State adoption for use in the public schools for the past five years as follows:

1910	$199,357.23
1911	204,823.33
1912	181,226.87
1913	295,373.36
1914	344,695.24
Total	1,225,476.03

The average enrollment in Alabama for these years was approximately from 430,000 to 435,000. The average annual sale was $245,095. The per capita sale on the basis of school population was, therefore, approximately 56 cents.

The McNeil Co., State depository of Arizona, expended for textbooks in 1912, $32,834; in 1913, $82,343; and in 1914, $33,125. These were sold to local dealers at an average advance of 10 per cent. When the free-textbook law was passed, the State depository secured a contract with the State and took back the stock of all local dealers and resold to the State. The school enrollment in 1911–12 was 33,310; in 1912–13 it was 35,160.

F. F. Hansell & Bro. (Ltd.), the State depository of Louisiana, report their sales of schoolbooks as follows:

Schoolbook sales by the Louisiana State depository.

Years.	Miscellaneous schoolbooks.	Net schoolbook sales—State books.		Total sales.
	Retail and wholesale.	Retail.	Wholesale.	
1911–12	$7,161.39	$10,627.95	$134,152.96	$151,942.30
1912–13	9,596.61	10,276.42	136,026.76	155,899.79
1913–14	10,567.00	12,584.39	138,105.74	161,257.13
1914–15	18,672.66	9,155.86	117,485.97	145,314.49
Total	45,997.66	42,644.62	525,771.43	614,413.71

The school enrollment for the same years as far as figures are available was 287,988 in 1911–12 and 293,522 in 1912–13.

The schoolbook depository for West Virginia, the James & Law Co., Clarksburg, report as follows:

The first year of the adoption we distributed in the 35 northern counties of West Virginia, and the S. Spencer Moore Co. had the 20 southern counties; consequently for the year 1912–13 the figures are only approximate. The law exempts towns of 3,500 or more from the use of these books. The values given are the cost to the pupils.

For year of 1912–13	$260,000
For year of 1913–14	123,000
For year of 1914–15	114,000

The enrollment in all schools for the year 1912–13 was 289,951; for later years the figures are not available. Data are not available to show the enrollment in towns not using the State-adopted books.

The Southern School-Book Depository, the State depository of Mississippi, report the amounts paid to publishers by them for State-adopted elementary school textbooks as follows: 1910–11, $233,954.50; 1911–12, $151,606.74; 1912–13, $138,632.43; 1913–14, $165,755.46; 1914–15, $134,518.05. The school enrollment for the same years as far as data are available was 1910–11, 461,374; 1911–12, 483,771; 1912–13, 484,039.

Further information is contained in the report of the Georgia schoolbook investigating committee to the State legislature (1914).

Georgia has State adoption of uniform books by the State board of education. Free books are not furnished, children or parents being required to purchase the books adopted by the State board. In discussing the annual expense of books in the State, the committee makes the following statement:

> Perhaps, also, it is due the general assembly to give the results of our effort to find, approximately at least, about the amount of money expended for schoolbooks in this State, especially since many widely divergent estimates and statements on this subject have been given to the public. So far as the elementary schools are concerned, the sworn figures of the dealers are to the effect that the total sales for the regular adopted texts during the past three years are a little less than $150,000 annually. Some effort has been made to check these figures, and there were selected for this purpose the counties of Habersham, Schley, and Early, and the figures given appear to corroborate the previous conclusion.

It should be noted that this figure ($150,000) is the total sales for the "regular adopted texts" only. In Georgia most of the cities and towns are exempted from using the State-adopted books. The State superintendent estimates that $50,000 additional is expended for books for elementary school pupils in cities and towns not included above.

The total enrollment in the elementary schools of Georgia for the year these sales were made was approximately 575,000. The expenditure per child was, therefore, approximately 35 cents. Both white and negro pupils are included in the above figures; the expenditure per white child was undoubtedly much greater than 35 cents, and per negro child less. The cost of new books in the Georgia State-adopted series is compared with prices paid in other States with State adoptions in Table 5.

A recent estimate of the cost of providing free textbooks for the State of New York has just been completed by the New York State department of efficiency and economy. The results constitute a report to the State legislature, dated January 15, 1915. This report gives an estimate of the probable expenditure necessary to supply all elementary and secondary school pupils in the State with free books. The estimate is based upon figures obtained from New York City relative to the cost in the city school system, where free textbooks have been supplied for 37 years. Uniformity of textbooks does not prevail in New York City. The department of education authorizes books which may be used, the selections being made by each individual school. The official list contains 1,806 titles of books for elementary schools and 2,225 titles of books for secondary schools. The city department had no statistics regarding the average cost of the books purchased, and it was necessary, therefore, to collect individual information from the various schools. A canvass was made of 450 schools with 18,325 teachers and 597,229 pupils in

the elementary grades. The titles and prices of all textbooks in use in 439 of these schools were obtained. A brief summary showing the average unit price paid in the city of New York, according to this report, for the textbooks used in teaching the seven subjects prescribed in the course of elementary instruction is given below; also there is given the cost of supplying pupils with textbooks in the city high schools. It must be clearly understood that these figures do not represent annual expenditures for free textbooks. They represent the cost of new books, which would be the expense incurred by the installation of a free textbook system. The annual expenditure would be approximately these figures divided by the number of years the books are used. The same report publishes the average annual cost of textbooks in 28 New York cities furnishing free books for elementary schools and 17 furnishing them for secondary schools. New York City is included in both groups. The annual per capita cost in elementary schools of 28 cities is $0.6456; secondary schools of 17 cities, $1.5833.

TABLE 2.—*Average price per book in elementary schools of the city of New York.*

Subject.	Grades.							
	1	2	3	4	5	6	7	8
Reading	$0.247	$0.279	$0.335	$0.361	$0.366	$0.369	$0.259	$0.238
Spelling	.....	.....	.....	.123	.132	.137	.....	.....
Arithmetic	.....	.....	.....	.229	.287	.327	.377	.399
Geography	.....	.....	.....	.441	.441	.567	.....	.....
English	.....	.....	.194	.273	.30	.325	.394	.454
Physiology	.....	.....	.....	.288	.335	.382	.421	.435
History	.....	.....	.....	.....	.....	.....	.652	.716
Total per pupil per grade	.247	.279	.529	1.775	1.891	2.107	2.103	2.242

TABLE 3.—*Average price of textbooks in secondary schools of the city of New York.*

First-year subjects	$3.5315
Second-year subjects	5.3074
Third-year subjects	7.0463
Fourth-year and special subjects	5.8395

This investigation indicates that the probable cost of installation of a system of furnishing free textbooks to all the pupils in the public schools of the State would be an average of $1.2348 for each elementary school pupil, and $4.8487 for each secondary school pupil, "if purchased from private publishers at prices paid by the city of New York. No estimate has been made of the cost of publication by the State itself. The cost of renewal, or the annual cost of a free textbook system for New York State, is estimated from the annual cost in free textbook cities of the State as follows: In elementary schools, $0.6456; in secondary schools, $1.5833."

EXTENT OF FREE TEXTBOOK MOVEMENT.

Free textbooks for all public elementary schools are mandatory in 15 States; in 11 of these they are mandatory for public secondary schools as well. These 11 are: Delaware, Maine, Maryland, Massachusetts, Nebraska, Nevada, New Hampshire, New Jersey, Pennsylvania, Rhode Island, and Wyoming. The four in which free textbooks need be furnished to all elementary school pupils only are Arizona, California, Utah, and Vermont. In the District of Columbia there is no law, but books are furnished by the board of education free to all elementary school children.

Of these States five—Arizona, California, Delaware, Nevada, and Utah—require the use of books adopted by State authorities. Maryland allows county boards to select books, Nebraska and Wyoming leave the selection with the local district boards, and New Jersey, Pennsylvania, Maine, New Hampshire, Vermont, Massachusetts, and Rhode Island with the city or township boards. In Arizona and California all books are secured from State funds and remain the property of the State. In the other instances the books are purchased by the local authorites from local funds, either city, county, township, or district, depending upon the unit of administration and support in each instance.

In 17 other States school districts may supply free books if they desire to do so; this applies to all districts in 16 States and to cities and union free districts only in New York. These "permissive" States are Colorado, Connecticut, Idaho, Iowa, Kansas, Michigan, Minnesota, Missouri, Montana, New York, North Dakota, Ohio, South Dakota, Texas, Washington, West Virginia, and Wisconsin. Texas was put in this list by act of the 1915 legislature. A "permissive" law was passed in Oregon in 1913 but was repealed by the 1915 legislature. In all but 5 of these 17 permissive States the question of whether or not free textbooks shall be furnished is decided by a majority vote of the legal voters in the individual school districts. The matter is left to the discretion of the school boards in North Dakota, Ohio, Washington, and West Virginia; in Idaho it is left to the district, subject to regulations of the State board of education.

The extent to which the permissive laws have been taken advantage of in the various States is indicated in the following statements furnished in all but two cases by the State superintendents (1913–15):

Colorado.—The majority of the larger cities and many towns of 1,500 or over furnish free textbooks. Of the rural districts, probably not more than 20 per cent take advantage of free textbook law.

Connecticut.—One hundred and thirty-three towns (townships) of the State furnish free textbooks; 35 do not. In the public schools of the towns furnishing free textbooks, 85 per cent of the total children of the State are enrolled. The total cost of free text-

books for the year 1913–14 was reported by the State superintendent to be $126,105, which is a cost of $0.70 per child.

District of Columbia.—Books are furnished free to all elementary school pupils.

Idaho.—While the State board of education has authority to determine whether textbooks shall be free or not, it has not yet exercised its authority in this particular, leaving the adoption entirely optional with individual school districts. About 75 per cent of the school districts of the State furnish free textbooks. This represents slightly more than 75 per cent of the school children.

Iowa.—Out of a total of nearly 5,000 school corporations in the State, less than 70 furnish free textbooks.

Kansas.—Very few districts and no cities, according to the State superintendent, have taken advantage of the provisions of the law permitting districts to furnish free textbooks. "The practice is so slight that it is hardly worth considering."

Michigan.—A total of 1,177 districts in Michigan have adopted free textbooks. A conservative estimate would place the number of children included as between 95,000 and 100,000. This is between 15 and 20 per cent of the total school enrollment.

Minnesota.—Out of 9,763 districts in the State reporting, 6,599 furnish free texts. Approximately nine-tenths of the children enrolled are in these schools.

Missouri.—Three hundred and twenty-three districts are reported by the county superintendents as furnishing textbooks free. In 207 of these districts $113,873.60 was spent for books for the 130,541 pupils, which makes the cost about 87 cents per pupil. Free books have been furnished only to the first four grades in 138 of these 207 districts. Approximately 30 per cent of the children in the State receive free books.

Montana.—In 1914 textbooks were provided by 613 out of 1,369 school districts. This makes slightly less than 57 per cent of the school enrollment with free textbooks.

New York.—Many cities and villages supply free textbooks. Union free districts may do so, but few have availed themselves of the privilege. Approximately two-thirds of the children in attendance upon the schools of the State are supplied with free textbooks.

North Dakota.—Free textbooks are furnished in 3,679 schools out of a total of 6,614 in the State. Practically one-half of the children of the State are supplied with free textbooks.

Ohio.—Approximately 20 cities have free textbooks, either in the grades or in the grades and high schools. The enrollment in these cities is about one-sixth of the total enrollment of the State.

South Dakota.—Approximately 5 per cent of the pupils of the State are in districts furnishing free textbooks.

Washington.—First-class city districts furnish free textbooks only on majority vote of the people; other districts in the discretion of the school boards. There are 1,437 school districts with free books, the total number of free books in use being nearly one and a half million. All schools in Benton County have free books. Approxi-proximately 70 per cent of the children enrolled in the State are in free-textbook schools.

West Virginia.—Free textbooks are provided in 50 magisterial districts out of a total of 342. This means that approximately 20 per cent of the children are in free-textbook districts.

Wisconsin.—There are 37 cities and approximately 2,836 other school districts providing free textbooks. The total number of city districts in the State is 78 and other districts approximately 7,000. Probably two-thirds of the children are in free-textbook districts.

To summarize: The approximate percentage of the pupils enrolled to whom free textbooks were furnished is: Connecticut, 85 per cent; Colorado, 60 per cent; Idaho, 75 per cent; Michigan, 20 per cent; Minnesota, 90 per cent; Missouri, 30 per cent; Montana, 57 per cent; New York, 66 per cent; North Dakota, 50 per cent; Ohio, 16 per cent; South Dakota, 5 per cent; Washington, 70 per cent; West Virginia, 20 per cent; Wisconsin, 66 per cent. The number in Iowa and Kansas is very small, and the Texas law has not been in operation long enough to allow districts to come under its operation.

In the 16 States where neither mandatory nor permissive laws have been passed, a considerable number of cities and other districts are furnishing books without any legal authorization. This does not refer to books for indigent children. In 9 of these 16 States, legal provision is made for free textbooks for such children—Florida, Illinois, Indiana, Kentucky, Louisiana, New Mexico, South Carolina, Tennessee, and Virginia.[1] The regulations in the different States differ somewhat, but the principal features are the same. In Florida free books may be supplied to any child not over 15 years old "whose father or mother is on roll of the county poor" and to other indigent children upon "requisition made by the teacher, accompanied by affidavit of not less than two reputable citizens." In Kentucky the county and city school superintendents ascertain the number of all textbooks needed for indigent children in common schools and report the number and amount of money needed to purchase them to the county judge, who shall approve for their payment from county funds. South Carolina permits school trustees to furnish books for poor children, but does not make it obligatory. Not more than 5 per cent of the total school fund of any South Carolina school district may be used for this purpose.

TABLE 4.—*Laws relating to free textbooks.*[2]

State.	Mandatory or permissive application.	If permissive, how adopted.	Territory with uniformity.	Source of textbook funds.	By whom provided.
Arizona	Mandatory for all elementary schools.	.....	State	State school funds.	State board of education. Distributed on requisitions of county superintendents.
California	Mandatory for day and evening elementary schools.	.....	...do	State schoolbook fund composed of State appropriation and proceeds of sales of books.	State board of education selects books and has them printed and published by the State printing office. Distributed on requisition of teachers.

[1] In many of the permissive free-textbook States school authorities are required to furnish books for children of indigent parents.

[2] Compiled from a digest of school laws made by W. R. Hood and A. S. Ford of the Bureau of Education.

TABLE 4.—*Laws relating to free textbooks*—Continued.

State.	Mandatory or permissive application.	If permissive, how adopted.	Territory with uniformity.	Source of textbook funds.	By whom provided.
Colorado	Permissive for all districts for all pupils.	Majority vote of school district.	Local district.	District school funds.	Local school district boards.
Connecticut	.....do.....	Majority vote of city or township.	City or township.	City or township school funds.	City or township boards of education.
Delaware	Mandatory for all pupils in State except in Wilmington City.	.....	State.....	District's portion of State funds before distribution to districts.	State board adopts books and makes contracts with publishers. Local district trustees order through State treasurer. State treasurer pays for all books out of State school funds, deducting amount as paid from each district's share of funds before State funds are distributed.
District of Columbia. (See p. 16.)	.....	.....	District of Columbia.	District school funds.	Board of education.
Idaho	Permissive for all pupils in all districts.	Under regulations of State board of education.	State.....	.....do.....	State board is authorized to determine how and under what regulations textbooks shall be adopted, and whether they shall be free.
Iowa	Permissive for all districts for all pupils.	Majority vote of school district.	County or local districts. (See p. 34.)	Special district textbook fund.	Local school district boards.
Kansas	.....do.....	.....do.....	State.....	School district funds.	State school book commission has books prepared or purchases copyrights and has all books printed by State printing office. Books sold at cost to local districts. See p. 39.
Maine	Mandatory for all public elementary and secondary schools.	.....	City or township.	City or township school funds.	City or township committees.
Maryland	Mandatory for all public elementary and secondary schools.	.....	County....	State school book funds apportioned to counties on basis of number of pupils enrolled.	County boards of education adopt textbooks and purchase "by competitive bidding."
Massachusetts	Mandatory for all public elementary and secondary schools.	.....	City or township.	City or township school funds.	City or township school committees.
Michigan	Permissive for all public schools.	Majority vote of school district.	Local districts.	Special local district funds.	Local school district boards.
Minnesota	Permissive for all districts for all pupils.	.....do.....	Local school districts.	District school funds.	Do.
Missouri	.....do.....	.....do.....	County....	School district incidental fund.	Do.
Montana	.....do.....	.....do.....	State.....	School district funds.	Do.
Nebraska	Mandatory for all public elementary and secondary schools.	.....	Local districts.	Local district school funds.	Local school district trustees.

TABLE 4.—*Laws relating to free textbooks*—Continued.

State.	Mandatory or permissive application.	If permissive, how adopted.	Territory with uniformity.	Source of textbook funds.	By whom provided.
Nevada	Mandatory for entire State for all pupils.		State	Portion of the county school fund belonging to each district.	Local school district boards from the State adoptions.
New Hampshire	Mandatory for all public elementary and secondary schools.		City or township.	City or township school funds.	City or township school committees.
New Jersey	Mandatory for all public elementary and secondary schools.		...do	City or township funds.	City or township school boards.
New York	Permissive for schools in city and in union free districts (see p. 23).	Board of education in cities and majority vote in union free district.	City or local school district.	Special district tax voted for the purpose.	City or district school boards.
North Dakota	Permissive for any school district.	Local school boards in their discretion or when petitioned by two-thirds of the voters of the district.	Local districts.	District school funds.	Local school district boards.
Ohio	Permissive for all public schools.	Boards of education.	City, village, or township districts.	City, village, or township contingent fund or special tax levied for the purpose.	City, village, or township boards of education.
Pennsylvania	Mandatory for all public elementary and secondary schools.		City or township.	City or township school funds.	City or township school directors.
Rhode Island	Mandatory for all public elementary and secondary schools.		...do	.....do	City or township school committees.
South Dakota	Permissive for any school district.	Written petition of majority of electors in school district.	County	School district funds.	Local school district boards.
Texas	.....do	Majority vote of school district.	State	Local district funds.	Local district boards.
Utah	Mandatory for all all elementary public schools.		...do	.....do	County boards of education.
Vermont	Mandatory for elementary schools, permissive for high schools.	Directors may provide books for high schools.	City or township.	City or township school funds.	City or township school boards.
Washington	Permissive for all districts.	Boards of school directors in their discretion. See p. 17.	City or local districts.	Local district funds appropriated for the purpose.	City or local school directors.
West Virginia	Permissive in all public free schools.	Boards of education in their discretion.	State	Magisterial district funds.	City or magisterial district boards of education.
Wisconsin	Permissive for all public schools.	Majority vote of school district.	City or county.	Special district tax levy.	Local district boards or city boards.
Wyoming	Mandatory for all public elementary and secondary schools.		Local school districts.	Any local district funds except teachers' fund.	Local district school boards.

Other provisions of free textbook legislation than those in Table IV are given below:

Arizona.—County superintendents furnish annually to the secretary of the State board of education lists of textbooks required for each county. The State board furnishes the books to the superintendent, certifying the cost to the State auditor, who draws a warrant on the State treasurer. The county superintendents distribute the books to the local district school boards, the school boards loaning them to the pupils and taking receipts therefor.

Textbooks remain property of the State in the custody of district school boards. Pupils are held responsible for their care, and when furnished a second copy are required to pay for it. Pupils may, if they desire, purchase textbooks at cost. All books must be fumigated before being reissued. Contingent expenses incurred in supplying textbooks are paid out of State school funds.

California.—The State constitution provides for furnishing textbooks "under such conditions as the legislature shall prescribe." The legislature has prescribed that textbooks for elementary schools shall be printed by the State and furnished free. The school code requires teachers or principals to make annual requisitions for books to the State superintendent. Requisitions must not exceed the enrollment in the schools. City superintendents for cities and county superintendents for country districts are held responsible for the care of the State textbooks, which in all cases remain the property of the State. State textbooks are subject to examination by agents of the State board. Desk copies of textbooks are furnished to teachers free of charge. Contingent expenses incurred in supplying textbooks are paid out of the State schoolbook fund.

Colorado.—In addition to the permissive law under which school boards may furnish free texts to all school children is another law requiring them to supply books free of charge to pupils upon the receipt of a written statement by teachers that parents are unable to pay for books.

Connecticut.—An election to determine whether free textbooks shall be supplied or not must be called upon a petition of 20 legal voters. Free textbooks when furnished are loaned pupils subject to rules and regulations of the city or township boards of education. School authorities must purchase books for pupils whose parents are unable to buy them. The cost of such books is included in the incidental expense account.

Delaware.—School committees are required to furnish free textbooks to all pupils, including colored children. School authorities must order from the books adopted by the State board. The State treasurer prepares blank order books for the use of school authorities which contain duplicate order blanks and a printed list of the books adopted by the State board, together with the net contract prices. Orders must be made in duplicate; one copy is sent to the State treasurer and forwarded by him to the publishers. The books are sent direct to the local districts. Upon notice of their receipt, the State treasurer pays for the books out of the State school fund, charging the amounts so paid to the respective districts ordering the same, the amount expended for books being deducted from the district's portion of the State school fund before the fund is distributed. The clerk of every school district is responsible for the care of the books. Books are returned at the close of the school year to the school trustees. The teachers are required to report quarterly upon their condition. Pupils may buy books from the school authorities, and are required to replace those lost or destroyed.

Iowa.—The question of free textbooks shall be submitted to the electors of any school district at the annual school meeting, if a petition signed by one-third of the legal voters is filed with the secretary of the school board 30 days prior to such meeting.

School boards hold pupils responsible for loaned books, and may adopt rules and regulations for the care and preservation of the same. Pupils may purchase books at

cost. School directors in their discretion may furnish schoolbooks to indigent children when they are likely to be deprived of the proper benefits of school unless so aided.

Maine.—School committees make rules and regulations for the distribution, preservation and return of schoolbooks. Parents and guardians are held responsible. They may purchase books for exclusive use of pupils. School committees are forbidden to purchase secondhand books.

Maryland.—The State appropriates annually $150,000 as a schoolbook fund. This is distributed to the various counties and to the city of Baltimore on the basis of the total number of children enrolled in school. County boards of education provide for issuing, safe-keeping, care, and return of textbooks. Parents or pupils may purchase their own books. Any surplus of the textbook fund remaining in a county after the purchase of the necessary textbooks may be expended for the purchase of maps of the State of Maryland and supplementary reading books.

Michigan.—Local school boards may submit the question of free textbooks at any annual or special meeting. When free textbooks are voted, notice of such action must be included in the annual report to the State superintendent. The district boards contract with the publishers to furnish books at a price not greater than the net wholesale price.

Textbooks remain the property of the district and are loaned to the pupils under such regulations as the board may establish. Any person may buy his or her books from the district board.

District school boards in their discretion may purchase at the expense of the district textbooks for the use of children whose parents are unable to furnish them.

Minnesota.—The question of free textbooks shall be submitted on petition of five or more legal voters of any school district at any annual or special meeting on due notice. Free textbooks shall carry by a majority vote. The school directors have full charge of the purchase and care of books so voted. School boards in their discretion may purchase books for indigent pupils and pay for same out of school funds of the district.

Missouri.—A vote to authorize school boards to purchase and furnish free textbooks may be taken at any annual or special school meeting provided 15 days' notice has been given. Such books must be paid for from the incidental funds. If such funds are insufficient to supply all of the textbooks during the first year, boards shall supply as many grades as possible, beginning with the lowest. They must, however, furnish free books to all elementary grades within three years from the time free textbooks are voted. Any school district furnishing textbooks free of charge to all pupils in at least four grades shall receive a proportionate share of the county foreign insurance tax monies.

Textbooks remain the property of the districts and are furnished pupils under rules and regulations prescribed by the school boards.

Montana.—The question of free textbooks is carried by a majority vote at any election of school-board members. A vote on this question is taken upon a petition of 100 legal voters in incorporated cities and towns and five legal voters in rural-school districts. School boards by a two-thirds vote may include supplementary books in free list.

If the school-district funds are insufficient to furnish free textbooks, a special tax levy may be made by the county commissioners on the district within 30 days after adoption of free textbooks.

Textbooks are loaned to pupils subject to rules and regulations as to care and custody as the school board may prescribe. Pupils may purchase any of the textbooks furnished at cost.

Nebraska.—All school districts are required to furnish free textbooks. If the general school fund is not sufficient, a special fund may be provided. District trustees

must purchase books from publishers who have filed a bond with the State superintendent with a sworn statement relative to price.

Textbooks are held as the property of the district and are loaned to pupils. Pupils are held responsible for damages or loss.

Nevada.—The books remain the property of the district and are loaned to pupils under regulations of the boards. Textbooks and supplementary books may be sold to pupils for cash. Parents and guardians must pay full price for books lost or destroyed. Desk copies of all textbooks are furnished teachers.

New York.—Free textbooks may be furnished in any city district and in any "union free-school district" by the school board whenever a special tax for the purchase of such books is voted by the electors of the district. When such a vote is taken, school boards are required to purchase books within 90 days. Books are loaned under such regulations concerning their care and preservation as the board may make. "Union free-school districts" are village districts or consolidated country districts with schools maintaining an academic department or high school.

North Dakota.—School boards select and purchase books from publishers who have filed copies and price lists with the State superintendent. The State superintendent is required to distribute the names of publishers and price list to school officials. Local boards have full care of free books. Textbooks may be sold to pupils at cost.

Rhode Island.—Textbooks are loaned to pupils free of charge, subject to such rules and regulations as to care and custody as the school committee may prescribe. No person officially connected with the public schools may act as agent for or be financially interested in the introduction of any textbook.

Vermont.—School boards are required to provide free textbooks for all elementary schools and may, in their discretion, provide them for high schools. Boards make rules and regulations for the care and custody of textbooks purchased and may sell books to parents or guardians at cost. Books lost, destroyed, or damaged must be paid for by parents or pupils. No school official shall receive any gratuity or other favor for promoting the adoption of any textbook.

Washington.—Boards of school directors are required to furnish free textbooks to be loaned to pupils when in their judgment the best interests of the district will be served thereby. School boards, where books are supplied free, prescribe rules and regulations regarding their care. Boards in first-class districts are required to furnish free textbooks to children of indigent parents on written statement of city superintendent. (See page 17.)

West Virginia.—Boards of education in their discretion may furnish free textbooks to pupils in free schools. The books are purchased and kept in charge of the secretary of the board. The secretary delivers books to the teachers at the beginning of the school term and takes receipt therefor. Teachers distribute books and at the end of the term collect them and return them to the secretary. Books damaged or destroyed must be replaced by the pupils.

Wyoming.—Boards are authorized to contract with publishers for books, the prices not to exceed prices paid for the same books elsewhere in the United States. Publishers must furnish bond from $2,000 to $20,000 and sworn price lists of books to the State superintendent, who prints and distributes the price lists to the school officers and furnishes a form of contract.

Textbooks are held as property of districts and are loaned to pupils free of charge. Pupils are held responsible for damage or loss of books. They may buy books at cost. Boards may designate some local dealer to handle books at an increase in price to cover cost of transportation and handling. No school officer shall be interested in the sale of school supplies in his district.

UNIFORMITY OF TEXTBOOKS.

In some of the States classed as "uniform textbook" States the adopted books must be used as basic texts in all public schools, elementary and secondary, and in all districts; in others, high schools are permitted to select for themselves; and in others, city districts and special tax districts may adopt whatever books they may desire. State uniformity does not, therefore, necessarily mean that all books used in public schools in the State are the same in each subject.

Laws for State uniformity have been enacted for many reasons. Probably the reason which has carried the greatest weight in causing the passage of legislation has been the question of cost. State adoption of uniform books has been taken as a means of regulating prices to prevent sales at exorbitant prices or at prices greater than the same books are sold in other places. In this the plan on the whole has been successful. State adoptions are made under regulations requiring contract prices with deposits of bonds to be forfeited in case of any violations of the terms of the contracts. It is undoubtedly true that lower prices prevailed after State uniformity had been established and adoptions made. Textbook publishers could afford to make lower prices when all the schools in the State were required to use their books, as the cost of selling was then made comparatively small. The high prices formerly paid were often the work of the local dealers rather than of the publishers. The legislation providing State adoptions has in all cases set the price to be paid by the users and has therefore prevented local dealers from overcharging. The establishment of State uniformity for State adoptions in 24 States has caused lower prices in other States; in many instances legislation has been passed prohibiting the sale of books in a State at prices higher "than such books are sold for elsewhere under similar conditions." Prices for which books are sold in 23 of the 24 "uniformity" States are given in Table 5.

TABLE 5.—*Comparative cost of required basal school books for elementary schools in States having uniform textbook adoption.*[1]

[The figures in parentheses before prices show the number of different texts. In other cases one only is used.]

State.	Primer.	First reader.	Second reader.	Third reader.	Fourth reader.	Fifth reader.	Arithmetic.	Grammar.	Geography.	History.	Agriculture.	Physiology.	Civics.	Spelling.	Writing.	Total number of books and cost.
Alabama	$0.22	$0.20	$0.25	$0.30	$0.35	$0.40	(4) $1.24	(3) $1.09	(2) $1.28	(3) $1.80	$0.60	(2) $0.86	$0.55	(2) $0.41	(6) $0.30	(30) $9.85
Arizona	.30	.25	.35	.40	.40	.40	(2) 1.10	(3) 1.45	(2) 1.75	(2) 1.50	.....	(2) 1.05	.....	(2) .55	.45	(20) 9.95
California[2]	.20	.20	.25	.25	.30	.30	(2) .55	(2) .65	(2) 1.05	(2) .90	.....	.25	.40	(2) .40	(5) .25	(23) 5.95
Florida	.25	.25	.35	.45	.45	.55	(3) 1.09	(2) .71	(2) 1.28	(3) 1.64	.60	(3) 1.35	.50	.18	(9) .45	(31) 10.10
Georgia	.14	.16	.18	.25	.40	.40	(2) .55	(2) .76	(2) 1.28	(3) 1.70	.55	.50	.44	(2) .24	(7) .35	(27) 7.90
Idaho	.30	.35	.40	.45	.50	.60	(2) .95	(3) 1.55	(2) 1.75	1.00	.....	(2) 1.10	.54	.20	.40	(19) 10.09
Indiana	.15	.15	.20	.25	.30	.40	(2) .95	(2) .65	.90	.75	.....	(2) .80	.....	.10	(5) .25	(20) 5.85
Kansas	.12	.10	.17	.23	.30	.40	(3) .80	(2) .55	(2) 1.05	.50	.....	.45	.40	.10	(8) .40	(25) 5.57
Kentucky	.10	.12	.20	.20	.35	.45	(4) .98	(4) 1.65	(2) 1.20	(3) 1.75	.....	(2) .90	.45	.12	(7) .35	(30) 8.82
Louisiana	.25	.25	.35	.35	.35	.40	(4) 1.01	(2) .62	(2) 1.28	(4) 2.50	.60	(2) .80	.60	.18	(8) .40	(31) 9.94
Mississippi	.20	.23	.32	.36	.30	.40	(4) 1.26	(3) .87	(2) 1.28	(3) 1.70	.60	(2) .82	.54	(2) .26	(8) .40	(32) 9.54
Montana	.30	.30	.30	.40	.50	.50	(3) 1.15	(2) .90	(2) 1.80	(2) 1.55	.....	(2) 1.10	.65	.25	(8) .95	(27) 10.65
Nevada	.30	.30	.35	.50	.50	.50	(2) 1.00	(2) 1.15	(2) 2.00	(2) 1.80	.....	.75	.....	.30	1.20	(17) 10.65
New Mexico	.20	.25	.35	.40	.40	.40	(2) .92	(4) 1.75	(2) .95	(3) 2.35	.....	(2) .85	.75	(2) .45	(8) .40	(30) 10.42
North Carolina	.25	.25	.27	.32	.32	.36	(3) 1.09	(2) .70	(2) 1.35	(2) 1.55	.60	.55	.60	(2) .41	(7) .35	(27) 8.97
Oklahoma	.25	.25	.35	.45	.45	.55	(2) .70	(2) .89	(2) 1.31	.90	.60	(2) .90	.....	.20	(8) .40	(25) 8.20
Oregon	.25	.25	.35	.45	.45	.55	(2) .93	(2) .81	1.00	(2) 1.50	.70	(2) .95	.65	.23	.45	(19) 9.52
South Carolina	.25	.25	.25	.30	.35	.35	(2) .76	(2) .68	(2) 1.33	(3) 1.60	.60	(2) .75	.60	.26	(7) .35	(27) 8.68
Tennessee	.25	.18	.25	.30	.35	.40	(3) .84	(3) 1.08	(2) 1.28	(3) 1.85	.60	(2) .63	.55	.18	(7) .35	(29) 9.09
Texas	.18	.18	.25	.30	.35	.40	(4) 1.16	(3) 1.02	(2) 1.36	(3) 1.60	(3) 2.10	(3) 1.60	.75	.18	(8) .40	(34) 11.83
Utah	.25	.25	.35	.45	.48	.48	(3) 1.20	(3) 1.65	(7) 3.55	(5) 3.55	.75	(5) 2.35	.20	(2) 1.50	(8) .40	(41) 17.41
Virginia	.18	.15	.22	.28	.30	.30	(2) .66	(2) .52	(2) 1.28	(5) 2.75	.60	(3) 1.40	.55	.20	(8) .40	(31) 9.79
West Virginia	.25	.25	.31	.41	.41	.41	(3) 1.05	(2) .84	(2) 1.28	(4) 3.81	.60	(2) 1.15	.53	.22	(9) .45	(31) 11.97

[1] Compiled from the report of the Georgia School Book Investigating Committee which collected the data from the State departments of education in 1914.
[2] The estimates of the State board of the cost of preparing, printing, and distributing books.

The second reason for the adoption of State uniformity has been the desire to secure for all districts of the State equally good books. The State textbook commission when composed of persons of wide experience in education is more competent to select books than the average school board. State adoptions have driven a large number of unfit books out of use, including some books never satisfactory from a pedagogical standpoint and others satisfactory at some time but not conforming in content or arrangement to present ideas and not adaptable to present methods of teaching.

Other advantages of State uniformity are the saving of expense for new books when families move from one district to another, and the comparative ease with which a State course of study can be made and followed when the same texts are used throughout the State.

On the other hand there are many disadvantages. State adoptions put into the hands of a few in each State the awarding of contracts which determine whether or not any publisher may do business in the State. Each publisher, therefore, must use all legitimate means to secure the adoption of his books, and the temptations to use illigitimate means are many. It is believed by many people that publishers resort frequently to bribery; it is undoubtedly true that bribery has played a part in some instances, but the number of instances is very much smaller than is usually imagined. There are many other ways, however, in which influences may be brought to bear on members of textbook boards which consciously or otherwise become factors in the selection of books.

One of the principal objections to State adoptions is that adoptions must be for definite periods, in practice from 4 to 8 years. A book once adopted must remain the basic text for the entire period, regardless of better books that may become available or data included which may become out of date.

Another objection is that in many subjects books suitable for one locality are not suitable for another, on account of the character or employment of the people or on account of the character of the school. In the past most textbooks have been prepared by educators engaged in city work and the books were made for city children and city school conditions; such books often are not suitable books for a rural school. Books best suited for the nine-months school year of a city with graded schools usually are not the best for the six-months school year in a rural ungraded one-teacher school a dozen miles from the city. Books best suited for a factory town with a large percentage of American born children usually are not the best for the neighboring mining town with a large percentage of foreign born.

Many of these objections may be met in part by the selection of several texts on each subject by the State text book commission,

allowing the local authorities to choose from among the number those best suited to local needs. This is done in several States, as, for example, in Ohio.

In favor of local adoptions it may be said that there is a growing movement on the part of school trustees to allow the school superintendent, where professional educators are employed as superintendents, to select the texts for them. This is particularly true in several States with the county unit of administration and in most of the States with the township unit of school administration. For instance, a study made in Massachusetts in 1900 by Mr. John T. Prince, agent of the State board of education, showed that in 233 cities and towns from which information was obtained the superintendents had full power of selection in 92; joint power with the school board in 44; advisory power only in 85; and no power whatever in the remaining 12. There are 283 cities and towns in the State. Since that time practically all cities and towns in Massachusetts have given the superintendent full choice.

Many of the arguments for and against State adoptions are used for or against county adoptions. Many educators, however, are advocating, as a happy medium between State uniformity and local district adoption, county or township adoptions, according to the unit of organization in the various States for administration purposes. The practice in the various States is summarized in the following pages:

STATE UNIFORMITY.

Regulations for uniform textbooks for public schools are in force in 24 States: Alabama, Arizona, California, Delaware, Florida, Georgia, Idaho, Indiana, Kansas, Kentucky, Louisiana, Mississippi, Montana, Nevada, New Mexico, North Carolina, Oklahoma, Oregon, South Carolina, Tennessee, Texas, Utah, Virginia, and West Virginia. In these States a State board selects the basic textbooks for the public schools. In 11 of these States this board is the State board of education; in 3 the State board of education or a part of the board together with additional appointed members; in 1 the State board of control of institutions of higher learning; and in the 9 others special textbook boards.

The 11 States in which the State boards of education select textbooks are Arizona, California, Delaware, Georgia, Idaho, Indiana, Louisiana, New Mexico, Oklahoma, South Carolina, and Virginia. In Georgia the State board of education is assisted by a "subcommission" composed of teachers and superintendents appointed by the governor. This subcommission examines all textbooks submitted relative to their merits, taking no consideration of the prices. It reports to the State board its first, second, and third choice of

books on each subject. The State board makes the adoption, taking into consideration the report of the subcommission and the prices and quality of the books submitted. The subcommission has no vote; its function is purely advisory.

In Idaho, in practice, the selection is made by a subcommittee of the State board of education consisting of 4 persons. The names of the 4 persons who from time to time constitute the membership of this subcommittee are not publicly announced. The State superintendent notifies publishers when adoptions are to be made and requests 4 samples of books on the subject to be adopted together with contracts and prices. The samples and contracts submitted by the publishers are turned over by the State superintendent to the subcommittee of the State board and considered by them. The subcommittee in this way is able to make adoptions wholly on the merits of the books submitted, uninfluenced by arguments presented by the publishers.

The 3 States in which the State board of education forms a part of the textbook board are North Carolina, Nevada, and Tennessee.[1] The North Carolina board of education is assisted by a subcommission composed of teachers and superintendents appointed by the governor, with functions similar to those of the Georgia subcommission. The adoption, however, is made by the State board and the subcommission sitting together in executive session, the members of both bodies voting. In Nevada the textbook commission consists of the State board with the addition of 4 persons appointed by the governor. In Tennessee the board is composed of 3 members of the State board of education selected by the governor, and the governor and the State superintendent of public instruction. This textbook commission selects a subcommission of 5 teachers and superintendents who make an examination of all books submitted and report on their merits irrespective of price. The members of the subcommission have no vote in the final adoption.

In Florida the State board of control for the State institutions of higher learning is the textbook commission. This board is selected for the work rather than the State board of education, because the State board of education is a board composed of ex officio officers at the State capitol. In the selection of textbooks the board is assisted by a subcommission of 9 members, including 4 county superintendents and 5 teachers. The subcommission has powers and duties similar to those of the subcommission in Georgia, having no vote in the final selection of books.

[1] In Utah the State superintendent, the president of the State university, and the president of the State agricultural college are ex-officio members of both the State board of education and the State textbook board.

In the other 9 States that have made State adoptions special textbook commissions are provided. The board is usually the State superintendent and from 5 to 9 persons engaged in educational work, appointed by the governor. Few definite qualifications are required in any of the States for appointment to the various textbook commissions. In several instances the law requires that teachers or superintendents be appointed. In Texas the governor must make his selection of 9 from a list of 30 prepared by a committee of 3—the State superintendent, the president of the State University, and the president of the College of Industrial Arts. The requirement that no member of the committee shall be "interested in any publishing house" is quite general. Members are usually paid from $4 to $6 per day and expenses for the days actually employed. In 4 States the governor is a member. In 2 States the presidents of State institutions of higher learning and of State normal schools are ex officio members. In 2 States neither the State superintendent nor any member of the board of education is on the textbook commission or has any voice in the adoption. These States are Montana and Oregon. The Montana State board is in practice the board of regents of the State University, the State Agricultural and Mechanical College, and the State Normal School and has very few functions relative to the public elementary and secondary schools. In Oregon the State board of education is an ex-officio board made up of State officers, the governor, secretary of state, and the State superintendent.

The tendency seems to be toward merging the State textbook commissions with the State boards of education wherever such boards are composed of appointed members and not of members serving in virtue of their election to some political position. In the 24 States with State uniformity of textbooks, 23 have State boards of education; Alabama has none. Six have ex officio boards composed of State officers elected to political positions; 16 have boards composed of appointive members or appointive members with ex officio members, distributed among the governor, the State superintendent, presidents of State institutions, and other education officers. The relation between the 2 boards is shown in the table below. There seems also to be a tendency toward the appointment of subcommittees of teachers and superintendents to make preliminary examinations of books without reference to prices.

It will be noted that only 5 of the 15 States with mandatory free textbooks for all public elementary schools have State uniformity in textbooks, and that 2 of these 5 are States in which the free textbooks are furnished by the State, purchased from State funds, and remain the property of the State, so that State uniformity is practically necessary.

TABLE 6.—*States grouped according to the composition of the State boards of education and State textbooks commissions.*

State board of education composed of—		State textbook commission consists of—		
Non political appointments and ex-officio education officers.	Political officers serving ex-officio.	State board of education.	State board of education and additional appointed members.	Specially appointed board.
Arizona.		Arizona.		Alabama.[1]
California.		California.		
Delaware.	Florida.	Delaware.		Florida.
Georgia.		Georgia.		
Idaho.		Idaho.		
Indiana.		Indiana.		
Kansas.	Kentucky.			Kansas.
Louisiana.		Louisiana.		Kentucky.
	Mississippi.			Mississippi.
Montana.				Montana.
New Mexico.		New Mexico.		
Nevada.			Nevada.	
	North Carolina.		North Carolina.	
Oklahoma.		Oklahoma.		
	Oregon.			Oregon.
South Carolina.		South Carolina.		
Tennessee.			Tennessee.	
	Texas.			Texas.
Utah.				Utah.
Virginia.		Virginia.		
West Virginia.				West Virginia.

[1] No State board of education.

The method of procedure in the adoption of textbooks in these 24 States is very similar. The textbook commissions advertise for bids and sample copies of books. Bidders are, as a rule, required to file bonds of from $200 to $5,000 with their bids as guarantees of good faith. When the contracts are awarded the bonds are returned. In all States, after adoption, contracts with accepted publishers are required, together with bonds of from $10,000 to $50,000 as guarantees for the performance of the contracts. Usually the contracts require that the prices of all books be printed on the books, and guarantees that all books shall be sold at as low a price as in any other State. The exchange prices are often fixed and provisions are made in the contracts for changing terms only by consent of the publishers and practically all members of the board.

Adoptions are for various periods, ranging from four to eight years. In 13 States it is for five years, in 4 for six years. In only a minority of the States is any provision made for changing a book before the period of adoption is ended even when the book proves on trial to be unsatisfactory.

DISTRIBUTION.

Methods of distribution have been designated by law in some of the uniform textbook States but not in others. In general it may be said that publishers receiving contracts in any State are required to estab-

lish a State depository or county depositories. When a State depository is required, county selling agencies as a rule must be established. In practice it is customary for all firms receiving contracts in a State to unite in establishing a single State depository which handles all the State-adopted books for all of the firms. Often some already established business house is designated as a State depository. Each firm pays to the management of the depository a commission on sales. The depository contract provides that the depository shall maintain "absolute neutrality" between publishers whose books it distributes.

The formation of these depositories is purely a business arrangement for economy in management and efficiency in distribution, since in but few instances are the sales in any State of any single firm great enough to warrant the establishment of a separate depository to handle its business. In a few States where individual firms are doing an especially large business independent depositories have been established; in Georgia, for instance, two firms maintain their own depositories apart from the general depository.

The fact that publishers have united in establishing single State depositories has often been cited as evidence of a "book trust." Investigation, however, of the conduct of the depositories does not show any reason for a belief in the existence of such a trust.

Publishers distribute State-adopted books from State depositories in 21 of the 24 uniform textbook States: Alabama, Arizona, Florida, Georgia, Idaho, Kansas, Kentucky, Louisiana, Mississippi, Montana, Nevada, New Mexico, North Carolina, Oklahoma, Oregon, South Carolina, Tennessee, Texas, Utah, Virginia, and West Virginia. As already noted, certain cities and towns in these States are not required to use the State-adopted books. The States bind the publishers by contracts protected by bonds guaranteed by surety companies to have their books constantly on sale at the depositories at the prices fixed by the State boards of education or the school-book commissions, and also in one or more places in every county of the States. Publishers are either expressly required, as in North Carolina, to "maintain one or more joint State depositories at some convenient distributing point or points in the State," or are practically required to do so, as in Alabama, where they must establish one or more depositories subject to the approval of the State textbook commission. In some instances even the terms of discount, etc., are prescribed by the State board or by the commission, the depository, however, being required as stated, to maintain "absolute neutrality" between the publishers whose books it distributes.

For the convenience of the merchants and the school children of these States the publishers have, when a central depository has not been designated by the State board of education or State textbook commission, selected one or more merchants located at the most con-

venient points of distribution, railroad facilities being considered, to act as their general distributing agents. From these general depositories the local agencies obtain all the State-adopted books, thus saving time, trouble, and expense incident to ordering from different places in the State or from the many contracting publishers. This arrangement is manifestly in the interest of the selling agencies and the school children, allowing the agencies, as it does, to secure all the adopted books at a central point in their own State and the children to obtain their books at convenient places when they need them. Publishers are also required by the majority of the States working under the State-adoption plan to mail postpaid or to ship by express or freight to any person ordering, if his order is accompanied by cash, a single copy or any number of copies of the State books at State prices. A citizen has, therefore, the option of ordering from the central depository, the local dealer, or the publisher.

In order to insure the selling of books to school children at State prices, the publishers are sometimes required to stamp upon the back covers of the books which they furnish under their contracts both the retail and the exchange prices. It is made by law the duty of the county superintendent to report to the State superintendent of schools every case known to him of overcharge on the part of a merchant selling or exchanging at a price higher than the State contract price. Both the State authorities and the publishers have tried to work out a plan of selling State adopted books so that the books may be obtained easily and promptly by the local agents, so that school children may obtain the authorized books without delay when needed and so that books may be always obtained at the same place.

The practices in the uniform textbook States, as reported mainly by the State superintendents, are as follows:

Alabama.—The firm of Loveman, Joseph & Loeb, Birmingham, Ala., is the State depository agreed upon by all publishers securing contracts. The State depository must maintain at least three subdepositories in each county. Many more than the minimum number have been established.

Arizona.—A central depository is maintained at Phoenix, The H. H. McNeil Co. to handle all State adopted textbooks.

California.—Books are printed and distributed from the State printing plant.

Delaware.—Local school authorities order books directly from the publishers. There is no State depository.

Florida.—The contract of the State textbook commission with the publishers provides that a State depository may be required, but up to the present time the commission has not required one. Many of the books are obtained through the Southern School Book Depository at Atlanta, Ga.; others are obtained direct from the publishers.

Georgia.—The American Book Co. and Ginn & Co. have each a depository in Atlanta; the Southern School Book Depository is the State depository for all other publishers whose textbooks have been adopted in the State. In addition, there are maintained from one to three agencies with mercantile supply houses in each county.

Idaho.—Four State depositories are designated by the State board in its contracts with book companies. They are located at Boise, Coeur d'Alene, Lewiston, and Pocatello.

Indiana.—Each county superintendent designates a dealer in the county as county depository. This dealer is required to sell to all other dealers in the county at a discount of 10 per cent from the contract price. The law provides that when a township trustee or a school board requests to be appointed as depository for his or its school corporation the county superintendent must make the appointment.

Kansas.—The publishers securing contracts for furnishing school books are required to establish agencies in different parts of the State. They have united in establishing a State depository known as the Kansas Book Co., located at Topeka.

Kentucky.—Books for the State are handled by one house, the State Book Depository, Louisville, Ky.

Louisiana.—The State board of education requires publishers to select a central depository and that this depository shall establish in the different counties a number of local depositories. The central depository is F. F. Hansell & Bro., New Orleans.

Mississippi.—Under the laws of the State textbook companies are required to establish one State depository through which all the books used in the State are distributed. This depository, under the supervision of the department of education, establishes as many selling agencies in each county as may seem necessary. The Southern School Book Depository, Jackson, Miss., is the State depository.

Montana.—The W. A. Moore Book & Stationery Co., Helena, is the general State depository for the publishers of all the textbooks adopted by the State textbook commission.

Nevada.—The firm of Gray, Reid, Wright Co. at Reno has acted as a general depository. Under the new free textbook system, according to the State superintendent, a general depository or agency will be established.

New Mexico.—A central depository, Charles Ilfeld Co., Albuquerque, has been maintained by publishers of the textbooks adopted by the State. State Supt. White says that the method of distribution has proved very satisfactory and will undoubtedly be continued.

North Carolina.—A central State depository handles the textbooks adopted for the entire State, arranging local depositories in each county. Alford Williams & Co., of Raleigh, is the State depository.

Oklahoma.—The Oklahoma Book Co., Oklahoma City, is the State depository handling all adopted textbooks for the State.

Oregon.—The State textbook commission enters into a contract with the publishers whereby the latter agree to keep their textbooks for sale in certain designated towns of each county. The number varies from 2 to 27 in the various counties. Books are distributed to the local dealers through one house in Portland, the J. K. Gill Co.

South Carolina.—A general State depository has been established at Columbia, the R. L. Bryan Co., to handle all State adopted textbooks. This depository is required to operate at least three local depositories in each county unless a smaller number is authorized by the State board of education.

Tennessee.—The law requires that the textbook commission shall designate a depository in each of the three grand divisions of the State. These three are located at Jackson, Nashville, and Knoxville. The commission, however, has established four others—at Cookville, Clarksville, Memphis, and Chattanooga—for greater convenience in the distribution of books. They have assigned a definite number of counties to each depository. The number of counties supplied by each is as follows: Jackson, 16; Nashville, 29; Knoxville, 28; Cookville, 6; Clarksville, 4; Memphis, 6; Chattanooga, 7. In addition one to eight book dealers in each county have been designated as local county depositories.

Texas.—The law requires publishing companies receiving the contract for textbooks to establish at least one general State depository. There are three established: the Southern School Book Depository, Texas School Book Depository, and Ginn & Co., all of Dallas.

Utah.—The Deseret News Book Store and the MacMillan Paper & Supply Co., Salt Lake City, act as State depositories and furnish books to school boards at the contract price made by book companies whose texts have been adopted. Their commission for the sale of books is made with the publishers.

Virginia.—Textbooks are distributed through a central depository known as the Virginia Book Co., located at Richmond.

West Virginia.—The law makes no specific plan relative to distribution except to specify that there must be at least three depositories in each county. A single State depository has been established by the publishers having contracts for books in the State, the James & Law Co., of Clarksburg, as a central State depository from which books are obtained by the local depositories in each county. State Supt. Shawkey states that the plan has worked very satisfactorily.

COUNTY UNIFORMITY.

County uniformity of textbooks is found in six States: Arkansas, Maryland, Missouri, South Dakota, Washington, and Wisconsin, and is permissive in Iowa upon majority vote of the county at any election. Fifty-three counties of 99 in the State have adopted it. The board selecting the books in Maryland and Washington is the county board of education; in the other four States special textbook boards, composed in three cases of the county superintendent and a certain number of teachers, and in Wisconsin of five teachers elected at the annual convention of the district school boards of the county. Members of the boards are paid from $2 to $5 per day for time actually spent in this work. In Arkansas, Missouri, and Washington county textbook commissions must make their selections from lists of books which, with prices and samples, have been deposited with the State superintendent. Otherwise county boards in all six States are free to select whatever books seem desirable. Contracts are made with publishers similar to those made in States with State adoptions. Books as a rule are adopted for five years. As Maryland furnishes all pupils with free textbooks, the county boards purchase the books. For the most part they are purchased from booksellers in the State who annually bid on the list of books needed for the ensuing year. The successful bidders order direct from the publishers. In Washington State distribution is made through two general depositories, one at Seattle and one at Spokane, to which most publishers ship books and from which points the books are distributed as ordered by merchants, booksellers, or school boards in the State.

OTHER STATES.

The 18 States with neither State nor county uniformity include 8 in which the unit of organization for administrative purposes is the city and local school district, 9 in which it is the township, and 1, Ohio, in which in 1914 the township unit was changed to the county unit. No change, however, was made in the manner of selecting textbooks, so that in this Ohio remains with the States on the township basis. In 10 of these 18 States there is uniformity in each township, in the other 8 each local district selects its own books. In Michigan, Minnesota, Nebraska, North Dakota, Ohio, and Wyoming books are purchased from a local dealer or from publishers, but only such books may be used in school as are published by firms who have deposited price list and samples with the State superintendents, and also filed bonds of from $2,000 to $20,000 to sell to purchasers in the State books as good in quality as the samples submitted and at the prices quoted. In Ohio and Iowa school boards purchase all books and except in free-book districts sell them to pupils at cost.

TABLE 7.—*Digest of State laws relating to uniform textbooks.*[1]

PART I.—STATE UNIFORMITY.

States.	Boards or commissions, methods of adoption, etc.					Regulations relative to publishers or contractors.		
	Title, composition, how appointed.	Qualifications, term, compensation.	Meetings, duties, procedure in adoption.	Period for which adopted, changes.	To what schools applicable, penalties.	Requirements of bids, samples.	Contracts—prices, bonds.	Distribution, depositories, dealers.[2]
Alabama	Textbook commission: Governor, State superintendent and 9 educators, 1 from each Congressional district appointed by governor.	"Known character and ability and engaged in school work" and have no interest in any contract that may be made. Term, 5 years. Appointive members receive $4 per day for time employed and 10 cents mileage.	Commission meet immediately after appointment and may hold special meetings. Commission advertise for bids, which are opened in executive session. "Quality shall take precedence over price."	Five years. Commission may by a three-fourths vote drop any unsatisfactory book at the end of first year. Supplementary books may be used.	All public schools.	They shall make bids accompanied by one or more samples of each book. Each bidder shall deposit $500 to $2,500, as determined by commission which shall be forfeited by failure to execute contract; deposit shall be returned after execution of bond.	On notice of acceptance contractors give bond for $10,000 to $30,000 for the performance of contracts. Sale price and exchange price must be printed on books. Price of books shall not exceed that for which they are sold elsewhere; difference may be recovered on bond.	Commission make rules governing the distribution of books; contractors must establish at least three depositories for the distribution of books in each county. Publishers maintain a single State depository at Birmingham.
Arizona (mandatory free textbooks for elementary schools).	State board of education.	.....	Board is authorized to adopt a "uniform series of textbooks;" State superintendent advertises for bids.	Five years. Not more than one book may be changed for any one grade in any one year. No change shall be made except at regular meetings.	For all public elementary schools except in a few cities.	.....	State board and publishers enter into contract for the faithful performance of which publisher shall give bond for not less than $20,000; books must not be sold anywhere at a lower price than in Arizona. Contract becomes void when contractor enters combination to control price of books.	Textbooks purchased from State school fund; remain property of State; loaned free to pupils through county superintendent and district officers. Publishers maintain a single State depository.

California (mandatory free textbooks for day and evening elementary schools).	.....do.....	.....	State board adopts textbooks, manuscripts, etc., and has the same printed by the State printer. Board prescribes books for high schools.	A period of not less than 4 nor more than 8 years.	Public elementary day and evening schools and high schools.	.....	.....	Requisitions for books shall be sent to the State superintendent by teachers or principals; person in charge of State warehouse shall ship books on order of State superintendent.
Delaware (mandatory free textbooks for free public schools).	.....do.....	.....	State board prescribes the textbooks and makes the contracts with publishers.	.....	.....	.....	State board and publishers make contract; on receipt of orders forwarded by State treasurer, contractors shall ship books to districts at contract prices.	School board orders books through State treasurer who pays for the same after 30 days and charge to district, deducting amount due from each district's portion of State school funds.
Florida.....	The board of control of State institutions constitutes the State textbook commission. A subcommission consists of 4 county superintendents and 5 teachers, holders of first grade certificates; appointed by the governor.	Subcommission composed of members not related to member of board of State institutions, nor within 5 years employed by a textbook company. Member receive $4 per day and expenses for not exceeding 30 days.	All books submitted to the State textbook commission are referred to the subcommission which considers their merits regardless of price, and report first, second, and third choice. The commission makes adoptions after advertising for bids. Commission may adopt a manuscript, but may not make a contract to have the same published.	Five years. After first adoption not more than 10 per cent of books may be changed in any one year.	For all elementary schools. County board of education may adopt high school books. Teacher "shall be dismissed for not using adopted books."	Bidders shall deposit 10 or more specimen copies of book; they shall also deposit $500 to $2,500 according to number of books proposed to be furnished, which deposit shall be forfeited on failure to execute contract and bond; cash deposit to be returned when bond is executed.	State and contractor execute contract in triplicate; contractor gives bond for not less than $10,000 for the performance of contract. Contract price and exchange price must be printed on each book. No contract price shall exceed that for which book is sold in any other State.	If commission requires, contractors must maintain in each county not less than 1 nor more than 12 agencies for the sale of books. No dealer shall sell books at a greater price than the contract price.

[1] These tables prepared from digests by W. R. Hood and A. S. Ford, of the bureau staff.
[2] See section on distribution on page 30.

TABLE 7.—*Digest of State laws relating to uniform textbooks*—Continued.

PART I.—STATE UNIFORMITY—Continued.

States.	Boards or commissions, methods of adoption, etc.					Regulations relative to publishers or contractors.		
	Title, composition, how appointed.	Qualifications, term, compensation.	Meetings, duties, procedure in adoption.	Period for which adopted, changes.	To what schools applicable, penalties.	Requirements of bids, samples.	Contracts—prices, bonds.	Distribution, depositories, dealers.
Georgia	The State board of education is the schoolbook commission. A subcommission consists of 5 teachers or superintendents elected by State board of education.	No more than one member of subcommission may come from the same congressional district. Members receive $4 per day and expenses for not over 30 days.	Specimen copies of books submitted to commission are referred to the subcommission, which examines books without regard to price; each member makes a sealed report of first, second, third choice, and so on. School book commission makes the adoption after advertising for bids.	Five years. Supplementary readers may be used.	For all elementary schools except in cities and towns organized as special tax districts. "Misdemeanor to use other than books adopted."	Publishers shall submit bids and specimen copies. Bidders shall make cash deposit of $300 to $2,500 which shall be forfeited on failure to execute contract and bond; deposit shall be returned to unsuccessful bidders, and to successful bidders when bond is executed.	State and successful bidder execute contract in triplicate. Contractors give bond for $1,000 to $20,000 for faithful performance of contract. Contract price and exchange price must be printed on books. No contract shall be made for a price in excess of that for which books are sold elsewhere. Contractor and four members of commission may change contract.	Contractors required to maintain in the State a central depository and in each county not less than three centers of distribution. Two firms maintain their own depositories; all others unite in a single depository.
Idaho	State board of education.	.....	State board shall determine under what regulations textbooks may be adopted.	.....	For all public schools, certain cities excepted.	.....	.....	Publishers maintain a single State depository.
Indiana	The State board of education.	.....	Board advertises for bids for books or manuscripts or for offers to compile books and make the adoptions. With consent of contractor board may order books revised.	Five years. Revisions, except copy books, histories, and geographies contracted for shall be for 10 years, but board by two-thirds vote may cancel contract at the end of 5 years.	For elementary schools.	Bidder shall accompany bid with bond for the faithful performance of contract if awarded; bidder shall take oath that he is in no compact to deny the benefits of competition.	Contractor agrees to furnish books at price named; if books are sold at a lower price elsewhere, contractor must make same price in Indiana, or the governor must order contract canceled. Price must be printed on books. Board may require additional bond when the original is insufficient.	County superintendent names a dealer as depository to supply the county with books; publisher shall sell to depositories at 15 per cent discount on contract price.

Kansas[1]	State school book commission, composed of 7 members: State superintendent, president of State normal, president of State agricultural college, State printer, president of State board of agriculture, and two persons appointed by governor. A secretary, not a member of commission, is appointed for his entire time.	Two persons appointed by governor receive $5 per day and actual expenses during service; term, 2 years.	Commission "shall adopt, write, select, compile, or cause to be written or compiled, or purchase copyrights for, a complete series of textbooks"; it may purchase books and manuscripts and may also procure copyrights for the State. The printing is done by the State printer. Commission "shall order the exclusive use of book when published."	.....	For all public schools.	.....	.....	The law relative to books printed by the State require each school board to purchase these books from State and sell them to patrons at cost, unless district votes to furnish books free; or school board may designate a dealer who shall be entitled to 10 per cent commission on cost price. "State school book fund" shall be kept as a revolving fund and a separate account therefor shall be kept. Publishers selling books in the State maintain a single State depository.
Kentucky	State textbook commission, composed of governor, State superintendent, members of faculty of each State normal school for whites, and of the State university, one educator from each of the appellate court districts; appointed by governor.	Term, 4 years. Members not drawing salaries from State receive expenses.	Commission advertises for bids; adopts books and make contracts; "it may consider books in executive session."	Five years "and no longer."	For all public schools. Misdemeanor to use other books, but supplementary books may be used. City school districts exempted from using State adoptions.	Publishers submit bids accompanied with samples and prices to dealers within counties, and exchange and retail prices to pupils. A fee of $5 is deposited with bid for each book. Bidder must file oath that he is in no agreement to control prices.	Commission makes contracts with publishers; contracts stipulate that retail price shall not exceed that at which books are sold at retail anywhere else. Prices must be printed on books. State may recover damages from publisher selling inferior books or at a higher rate than contract price. Contractor gives bond for $10,000 to $50,000.	County boards of education or city boards name two or more responsible dealers, who receive 15 per cent of retail price and pay cost of transportation, etc., out of that. Exchange for old books is made according to contract. Publishers maintain a single State depository.

[1] Kansas did not provide for the printing of her own books till 1913. The first products of the State printing plant were used in the fall of 1914. Many books are still purchased from commercial publishers under old contracts.

TABLE 7.—*Digest of State laws relating to uniform textbooks*—Continued.

PART I.—STATE UNIFORMITY—Continued.

States.	Boards or commissions, methods of adoption, etc.					Regulations relative to publishers or contractors.		
	Title, composition, how appointed.	Qualifications, term, compensation.	Meetings, duties, procedure in adoption.	Period for which adopted, changes.	To what schools applicable, penalties.	Requirements of bids, samples.	Contracts—prices, bonds.	Distribution, depositories, dealers.
Louisiana.....	State board of education.	.....	Board shall prescribe procedure in announcing for bids, awarding contracts, etc. Adoption of elementary books and high-school books shall be in periods 3 years apart.	Six years. A book may be changed at any time upon written application of 40 parish (county) school boards.	For all public schools.	.....	Board determines form of contract for furnishing books.	Board makes rules for the establishment of depositories for the distribution of books. Publishers maintain a single State depository.
Mississippi.....	State textbook commission, composed of State superintendent and 8 educators, not more than 1 of whom may be from the same congressional district; appointed by the governor.	Appointive members receive $5 per day, 10 cents per mile traveled, and necessary expenses for not exceeding 30 days; term, 5 years.	Commission meets after its selection; majority a quorum; it advertises for bids, which are opened in executive session. It notifies successful bidders of adoptions. Separate school districts may adopt supplementary books.	Five years. Not more than 25 per cent of books in use at any State adoption shall be changed. Commission has no power to extend contract beyond 5 years.	For public elementary school.	Publisher submit bids, giving wholesale and retail prices; samples accompany bids; such deposit as commission may require "shall be made and shall be forfeited if successful bidder fails to execute contract and bond." Exchange price of books shall not exceed 50 per cent of retail contract price.	Commission and successful bidder enter into contract; bidder gives bond for not less than $10,000 for the performance of contract. Books furnished must be equal to samples. Price must be printed on books. Books shall not be sold at a lower price outside the State. Eight members and contractor may change contract. Contract and bond shall be forfeited on failure to supply books.	Contractors maintain one State depository and two or more agencies in each county. Books shall be sold at retail contract price to consumer. State superintendent furnishes list of books adopted to county superintendents.

Montana.....	State textbook commission, composed of seven members, five of whom are actively engaged in educational work; appointed by governor.	Each member receives $6 per day and expenses for not exceeding 10 days in any year; term, 5 years.	Regular meetings are held annually and are open to the public; five members a quorum. Special meetings may be called. Commission receives sealed proposals and makes adoptions, but all proposals may be rejected and advertisements for new bids published.	Six years. Changes may be made in not more than three subjects at any meeting.	Books adopted for all the public schools. Supplementary books adopted. Misdemeanor for "school officer or teacher to use other than adopted books."	Publisher files proposal, giving wholesale, retail, and exchange prices.	Commission makes contracts for furnishing books. Contractor shall give bond for at least one-half the value of books to be furnished, bond to be conditioned on the faithful performance of the contract.	Contractor maintains a single State depository and keep books on sale at one or more places in each county. Books are purchased by school boards in free textbook districts, by pupils in other districts. State superintendent furnishes list of books and prices to school officers.
Nevada. (Mandatory; free textbooks for all pupils.)	State textbook commission, composed of State board of education and four others appointed by governor.	Members must be engaged in educational work; they receive $5 per day for not exceeding 10 days in any year and traveling expenses; term, 4 years.	Meetings are public; four members a quorum, but a vote of majority of all members is necessary for an adoption. Regular meetings are held every four years; special meetings may be called by three members. Commission notifies publishers and receives sealed proposals; it may reject all proposals.	Four years. Changes may be made only at termination of contract.	For all public schools. Supplementary books may be adopted. Misdemeanor for "teacher or school officer to use other than adopted books."	Publisher submits proposals, together with introductory, exchange, and retail prices.	Commission and successful bidder enter into contract which stipulates prices not to exceed those for which books are sold elsewhere. Contractor gives bond for one-half of the value of books to be furnished in any year, bond to be forfeited for breach of contract.	Contractor maintains a single State depository and depositories in each county. Books are purchased by local boards. State superintendent furnishes list of adopted books, with prices to school officers.
New Mexico....	State board of education.	.....	State board is vested with power to adopt a uniform series.	Six years. The constitution provides: "There shall be a uniform system of textbooks for the public schools which shall not be changed more than once in six years."	For first eight grades of the public schools.	.....	Board may contract with publishers for furnishing books.	Board adopts regulations for the distribution of books.

TABLE 7.—*Digest of State laws relating to uniform textbooks*—Continued.

PART I.—STATE UNIFORMITY—Continued.

States.	Boards or commissions, methods of adoption, etc.					Regulations relative to publishers or contractors.		
	Title, composition, how appointed.	Qualifications, term, compensation.	Meetings, duties, procedure in adoption.	Period for which adopted, changes.	To what schools applicable, penalties.	Requirements of bids, samples.	Contracts—prices, bonds.	Distribution, depositories, dealers.
North Carolina.	State board of education and subcommission of six teachers or county superintendents appointed by governor and State superintendent.	Members of subcommission receive $4 per day and expenses for time employed. No member shall have been agent for textbooks within 2 years; term, 4 years.	Commission advertises for bids; subcommission considers merits of books submitted, regardless of price, and reports first choice, second choice, and so on. Commission and subcommission meet in executive session to open and consider bids and select and adopt books.	Five years.....	For all public elementary schools. Higher branches may be taught without adoption. Supplementary books may be used. Teacher using "other than adopted books shall be dismissed and certificate revoked."	Bidder shall submit sealed bid with prices; he shall deposit $500 to $2,500 as a guaranty that contract and bond will be executed; 10 or more specimen copies of each book shall be submitted.	Governor and secretary of state contract for the State with successful bidders. Contractor agrees not to sell books elsewhere at a lower price; if books are so sold, commission may sue on bond and recover difference in price. Contractor gives bond for not less than $10,000 for performance of contract. Four members of commission and contractor may change contract. Prices must be printed on books.	Contractor maintains a single State depository and in each county as many agencies as commission orders.
Oklahoma.....	State board of education.	No member of State board shall be interested in any publishing house offering books for adoption, or in any books offered. No State official shall act as agent for any publisher.	State board is empowered to adopt uniform system of textbooks, giving preference to books by Oklahoma authors, other things being equal. If proposals of prices from publishers are considered unreasonable, State	Five years. State board, by majority vote, may at end of any school year discontinue use of unsatisfactory books.	For common schools up to and including twelfth grade. Adopted books and supplies shall be used exclusively. "Misdemeanor" to use other	Each bid shall be accompanied by sample copies of books, retail price of same, and a cash deposit of from $500 to $2,500, as determined by State board. When contracts are made, cash deposits are returned.	When new books are adopted, old books must be taken in exchange at not less than 50 per cent of contract price; exchange period shall not continue longer than 1 year from date of contract. When contract is awarded, the publisher must furnish bond of not less than $10,000. No contract	Contractors shall place books and supplies on sale at "as many places in each county as determined by State board." They maintain a single State depository.

			board may publish books, but same "shall not cost more than standard price of such book or books."		than adopted books.		may be made for any book in excess of the lowest price charged for such book elsewhere under like conditions. Contract void if publisher enters combine to raise prices. Contract and exchange prices must be printed on books.	
Oregon.....	State textbook commission, composed of 5 members appointed by the governor.	Compensation $100 each meeting and 10 cents mileage each way; term, 4 years.	Commission meets every 6 years at State capitol and continues in session for a period not to exceed 15 days; 4 members a quorum. Every 6 years State superintendent mails to all leading schoolbook publishers in the United States a circular containing (1) name and address of each member of textbook commission; (2) time and place of meeting of commission; (3) general form of bid to be submitted; (4) form of contract; (5) branches of study; (6) law relative to adoption of books; (7) additional important facts. Sessions of commission are public. Textbook commission reports adoptions to State board.	Six years.....	All public elementary schools; also for 2 years' required work in high schools. (Adoption shall include all branches specified in State course of studies for schools of all grades and not others.) Adopted books shall be used exclusively in public schools.	Proposals submitted not later than first day of session of commission and must contain title of book, date of copyright, exchange price, introductory price, and retail price for period of adoption. A copy of proposed textbook must be sent to each member of commission at least 60 days before meeting.	Commission contracts with publishers for adopted books. Publishers file bonds with State board of education.	Publishers maintain a single State depository and at least one depository in each county designated by State board of education; State superintendent shall issue circular relative to adopted books and distribute same to school officials. Districts may furnish books free of charge to pupils.

TABLE 7.—*Digest of State laws relating to uniform textbooks*—Continued.

PART I.—STATE UNIFORMITY—Continued.

States.	Boards or commissions, methods of adoption, etc.					Regulations relative to publishers or contractors.		
	Title, composition, how appointed.	Qualifications, term, compensation.	Meetings, duties, procedure in adoption.	Period for which adopted, changes.	To what schools applicable, penalties.	Requirements of bids, samples.	Contracts—prices, bonds.	Distribution, depositories, dealers.
South Carolina.	State board of education.	.....	"May adopt and enforce use of uniform series of textbooks in free public schools." Meetings are public.	Five years. State board may not, except with consent of the legislature, change any textbook within 5 years of date of adoption except for violation of contract by publisher. Not more than 50 per cent of exchangeable books may be changed at any one adoption.	Public schools, including high schools, certain cities excepted. "No public-school teacher shall use other than adopted books, without written consent of State board." Teacher shall forfeit pay if using other than adopted books.	.....	State board may enter into contract with publishers to furnish books for fixed period of time and at fixed price; may require bond, not to exceed $5,000, of any publisher.	Publishers maintain a single State depository. "County depository shall be in office of county superintendent" and superintendent shall designate a depository in each township; not more than 10 per cent allowed dealers for handling books.
Tennessee.....	State textbook commission, composed of governor, State superintendent of education, and 3 members of State board of education named by the governor. This commission	Commission serves without compensation. Subcommission members receive $4 per day and necessary expenses for time actually engaged, not to exceed 60 days; paid out of public-school fund.	Commission submits books to subcommission, who examine them and report to commission the merits of the books irrespective of price. In adopting books commission considers all essential points. The governor issues a	Five years. Any contract may be altered with consent of contractor and at least 4 members of commission.	For all public schools. Adopted books shall be used exclusively; "misdemeanor" for teacher to use others.	Commission advertises for sealed bids from publishers. Bids shall state prices; sample copies shall accompany bids. Publishers shall deposit amounts ranging from $500 to $2,500 with bids.	Attorney general of State shall prepare contracts, which shall be executed by governor and secretary of state. Contractor files bond in sum of $10,000 to $30,000; recoveries on such bonds to go to school fund. Prices of books must not exceed those charged elsewhere under like condi-	Contractors shall maintain a depository in each of 3 grand divisions of State, location to be designated by commission; not less than 1 nor more than 4 agencies in each county shall be maintained for distributing books. Books shall be sold for no more than retail price. In practice 7 State de-

	appoints a subcommission of 5 teachers, or city or county superintendents, from different congressional districts.		proclamation announcing adopted books.				tions. Contractors must agree to take up books in use at exchange prices, which shall be not less than 50 per cent of contract prices.	positories are maintained.
Texas.....	State textbook board, composed of governor, State superintendent, and 9 teachers appointed by the governor.	The presidents of College of Industrial Arts and the University of Texas and the State superintendent of education nominate 30 teachers from which the governor appoints the 9 members of textbook board; such teachers must have been actively engaged in teaching in State for past 3 years; 1 must be a primary teacher.	Textbook board selects and adopts textbooks; it also selects supplementary reading books for primary and intermediate grades.	Six years. A board of revision composed of president of University of Texas, president of College of Industrial Arts, and State superintendent may cause adopted books to be revised from time to time but not oftener than 2 years for any book.	For all public schools. Teachers failing to use adopted books shall be guilty of a "misdemeanor."	.....	Textbook board makes contracts. The State shall not be liable to any contractor. State may, at its option, cancel any contract. Contractors shall file bond. Secretary of state shall act as agent of nonresident publishers for citation and issuance of writs in cases of suit on account of adopted books.	Contractors shall maintain 1 central depository in the State and 1 or more agencies in each county containing 500 or more school children, 1 such agency being at each county seat; in other counties books shall be supplied under rules of State board of education.

TABLE 7.—*Digest of State laws relating to uniform textbooks*—Continued.

PART I.—STATE UNIFORMITY—Continued.

States.	Boards or commissions, methods of adoption, etc.					Regulations relative to publishers or contractors.		
	Title, composition, how appointed.	Qualifications, term, compensation.	Meetings, duties, procedure in adoption.	Period for which adopted, changes.	To what schools applicable, penalties.	Requirements of bids, samples.	Contracts—prices, bonds.	Distribution, depositories, dealers.
Utah (mandatory free textbooks for all pupils).	State textbook commission, composed of State superintendent of education, president of University of Utah, president of State Agricultural College, principal of State Normal School, and 5 citizens of State appointed by governor.	Three of appointed members must be superintendents of schools. Appointed commissioners receive no compensation, but actual expenses. Term, 5 years.	Commission, by majority vote, adopts books for district and high schools, except in cities of first and second class. State superintendent calls convention of commission 6 months before expiration of any contract.	Five years. No change shall be made except "for sufficient cause, to be decided by commission at meeting called for purpose."	Adopted for all schools, except in cities of first and second class. If any trustee shall refuse or neglect to use adopted books, "he shall be guilty of misdemeanor." In cities of first and second class, the board of education shall adopt books for period of 5 years and contract with publishers for such books.	State superintendent shall advertise for sealed bids for books; samples of books and prices must accompany bids.	Publishers, whose bids are accepted, must enter written contract with State superintendent and furnish required bond.	Publishers maintain 2 State depositories.
Virginia.....	State board of education.	.....	Shall adopt books "suitable for schools in cities and counties, respectively." No teacher or school official of the State "shall have any pecu-	Period not to exceed 7 nor less than 4 years. Any book may be changed after 4 years' use by vote of 6 members of State board.	Adopted for free public schools.	.....	State board enters into contract with publishers. Price of books must not exceed lowest price charged anywhere else in United States under like conditions. Prices shall	Publishers maintain a single State depository. "Division superintendents shall see that books are placed within easy reach of pupils, and sold at contract prices." Price list of

			niary interest in any book adopted"; State board may, however, adopt any book whose author may be a teacher or school official.				be reduced in State when reduced elsewhere. Publishers, when books are adopted, file bond.	adopted books shall be kept in every schoolroom.
West Virginia..	State school-book commission, composed of State superintendent of education and 8 citizens of State, appointed by governor. Boards of education in cities and independent districts containing 2,500 population or more may select their own textbooks.	No member of textbook commission may be interested in the preparation, manufacture, or sale of any textbook submitted for adoption. Five of appointees must be experienced educators actually engaged in educational work; not more than 5 may belong to same political party; compensation, $5 per day and expenses, for not more than 10 days in any 1 year; term, 5 years.	Commission adopts books for uniform use in free schools of State. No book may be adopted by less than 5 affirmative votes. No partisan or sectarian book shall be adopted.	Five years. No change may be made in any adopted book at expiration of 5-year contract except by vote of 6 members.	For free schools, certain cities excepted. Misdemeanor to use other than adopted books. Supplementary books may be used in addition to adopted books.	Commission asks publishers to submit samples and prices. Cash deposit ranging from $1,000 to $3,000 required of bidders, the same to be forfeited in case bidder fails to make contract and bond upon acceptance of his bid.	Chairman of commission shall make contracts with publishers. Contractor files bond of not less than $10,000; any bond or deposit forfeited shall be paid into school fund. Prices of books fixed by commission. Prices shall be reduced in State when reduced elsewhere.	Contractors shall establish at least 3 depositories in each county. Dealers shall receive no more than 20 per cent profit on books. Any parent, pupil, or teacher may order books direct from the contractor. The publishers maintain a single State depository.

TABLE 7.—*Digest of State laws relating to uniform textbooks*—Continued.

PART II—COUNTY UNIFORMITY.

States.	Title, composition, how appointed.	Boards or commissions, methods of adoption, etc.				Regulations relative to publishers or contractors.		
		Qualifications, term, compensation.	Meetings, duties, procedure in adoption.	Period for which adopted, changes.	To what schools applicable, penalties.	Requirements of bids, samples.	Contracts—prices, bonds.	Distribution, depositories, dealers.
Arkansas.....	County schoolbook board, consisting of county examiner or county superintendent, 2 resident teachers appointed by State superintendent, and 2 citizens appointed by the county judge.	The resident teachers must hold first-grade certificates; the two citizens must be "interested in the public schools." Members receive $2 per day each for time served.	Meeting on first Tuesday in November; session in any one year shall not exceed 10 days. Board shall adopt no book the price of which exceeds that for which it is sold in any other State.	Six years.....	For use in the elementary schools. After 1 year from adoption teacher or director may be fined $15 or more for using other than adopted books. Special districts may adopt the county series or a different series. Uniformity in any county must be authorized by a majority of electors voting at an election.	Publishers shall deposit samples of books with State superintendent and prices at which books will be sold. Sample shall also be deposited with county examiner or county superintendent.	Publisher contracts with each county to furnish books at the price for which and during the period for which books are adopted. Publisher enters into bond to the State for $20,000.	

Maryland (mandatory free textbooks for all public-school pupils).	County school commissioners in the counties and city school commissioners in Baltimore city.	.....	Board shall devise means for the adoption of textbooks by competitive bidding. Board "shall contract with publishers and report annually to the State board of education the names of publishers and net prices paid."	Board may change books at any time.	For the public schools.	.....	.....	"The county board shall purchase books and furnish the same to public-school pupils;" the boards order direct from publishers.
Missouri.....	County textbook commission, composed of county superintendent and 2 teachers, 1 appointed by the State board of education, the other by the county court.	Members must not have been textbook agents within last two years. Salary, $5 per day and expenses for not not exceeding 6 days in the year; term 2 years.	Meetings annually and special meetings may be held; majority a quorum. Commission must adopt books from State list of publishers who have filed samples and prices with State superintendent.	Five years. Changes shall not be made without advertisement beforehand. Misdemeanor for member to vote for change before expiration of contract, or for publisher to seek to secure such change.	All public schools, except that cities having more than 1,000 children of school age and towns having high schools affiliated with the State university may adopt books. Misdemeanor for teacher or director to use other than adopted books. Supplementary books may be used, but not to exclusion of adopted books.	Publishers shall file books and lists and lowest net prices with State superintendent; shall agree to furnish books at as low price as anywhere in the United States under like conditions. A filing fee of $10 for each book or series shall be paid. Publisher shall file a sworn statement that he is in no agreement to control price of books; he shall show ownership of publishing house.	Publishers, in order to sell books in the State, must give bond for $2,000 to $10,000. They are liable upon bond if books are inferior to sample or sold higher than contract price. A copy of adopted book must be filed with each county superintendent. Bond and contract is forfeited if publisher enters combination to control prices or proves not to be owner of publishing house.	No State depository; dealer may sell books at 15 per cent advance on net contract price. Misdemeanor for any publisher to offer books for sale without first obtaining a State license.

TABLE 7.—*Digest of State laws relating to uniform textbooks*—Continued.

PART II.—COUNTY UNIFORMITY—Continued.

States.	Boards or commissions, methods of adoption, etc.					Regulations relative to publishers or contractors.		
	Title, composition, how appointed.	Qualifications, term, compensation.	Meetings, duties, procedure in adoption.	Period for which adopted, changes.	To what schools applicable, penalties.	Requirements of bids, samples.	Contracts—prices, bonds.	Distribution, depositories, dealers.
South Dakota..	County board, composed of the county superintendent, presidents of boards of all city and town districts, county auditor, county State's attorney, members of county board of commissioners, and 1 person from each commissioner's district appointed by school boards of district.	.....	County board must advertise for 20 days for sealed bids for furnishing books and adopt books which "in addition to other qualifications must be satisfactory in price, type, material, and binding." County superintendent shall annually report to county board operation of book contract; shall notify county board of meeting to adopt books.	Five years; shall not be changed within that time, except on request of two-thirds of school boards of county.	For all public schools.	Publishers furnish sealed bids with price, etc.; cost shall not exceed that of same books furnished during previous year anywhere in United States.	County commissioners contract for books adopted by county board and designate depository for each school corporation. Books paid for out of general fund and sold at no more than 10 per cent advance over cost. County commissioners shall purchase any books printed by State for schools.	County commissioners designate depository for each school corporation; may require bond from such depository. County board shall furnish price list of adopted books to school officials. Any school corporation may furnish textbooks free to pupils.
Washington....	County boards of education for all districts in counties except those maintaining a 4-year accredited high school. In such dis-	.....	"To select textbooks for district and require use of adopted books."	Five years. County board or officers of school district may select supplementary books. Books adopted by any district commission shall continue in use until dis-	For all public schools in the county or district. Any district using other than prescribed books, shall forfeit for that year or	Board or commission shall advertise for bids; an exchange and a retail price must accompany such bids. A copy of any book offered by any publisher for adoption	When any book is sold in any district at price greater than retail price agreed upon, the county superintendent "shall order and sell such book to such district at prices agreed on in contract."	Certain districts shall and others may furnish books free to pupils. Directors must require pupils to be furnished with adopted books. Publishers maintain 2 State depositories.

	tricts a district textbook commission composed of city superintendent (or, if there be none, principal of high school), 2 members of board of school directors, and 2 teachers of district appointed by the directors.			placed or replaced by said commission; no such book shall be adopted for period less than 3 years. Supplementary books may be adopted for any period of time.	year following 25 per cent of school fund.	shall be filed with State superintendent.		
Wisconsin.....	A county board composed of 5 legally qualified teachers elected at county school board convention; or the board of education in any city.	Each member must have had 5 years' experience in teaching or supervision; and no personal interest in any book proposed for adoption. Members are reimbursed actual expenses; term 4 years.	Vote of majority of entire board necessary to adopt any book. Board meets every fourth year. Books must possess the features that go to make up a desirable textbook; "merit, however, shall be the main point to be considered."	Five years. Books shall be adopted in all branches required by law to be taught in district schools of State. Textbooks in physiology must be approved by State superintendent and board of health.	For all districts of county except for districts and cities maintaining a free high school and for State graded schools of the first class. Adopted books shall be used exclusively. State graded schools may, by unanimous vote of school board, adopt books in lieu of books adopted by county board.	County boards shall advertise for bids; samples of books and price lists must accompany bids.	President and secretary of county board shall sign all contracts on behalf of board. Contractors must give bond in sums determined by county board.	County boards designate depositories for adopted books; such depositories shall furnish bond; list of adopted books shall be filed in the schoolhouse. Districts may furnish textbooks free of charge to pupils.

TABLE 7.—*Digest of State laws relating to uniform textbooks*—Continued.

PART III.—TOWNSHIP AND DISTRICT UNIFORMITY.

State.	Board or commission authorized to adopt.	Period for which adopted, changes, etc.	Conditions, contract, etc.	Additional data.
Colorado	District board of directors...	When once adopted, book may not be changed within 4 years, unless price is unwarrantably advanced or the quality lowered.	"But one textbook of the same grade or branch shall be used in the same department."	Under the constitution, neither the legislature nor the State board of education has power to prescribe textbooks to be used in the public schools.
Connecticut	City or town (township) school committee, subject to the approval of the State board of education.	State board may not direct any book to be changed oftener than once in 5 years. School boards may not change a book, except by two-thirds vote.	.....	Additional books in reading may be adopted, but city or township district must purchase and furnish the same free to pupils.
Illinois	Board of school directors....	Boards are authorized to direct what textbooks and apparatus shall be used and to enforce uniformity in the district. Board shall not permit books to be changed oftener than once in 4 years.	.....	
Iowa (see last column, also p. 34).	Board of school directors, when authorized by vote of qualified electors.	Adoptions may be made for 5 years, but district may vote to change. Books bought from district contingent fund and sold to pupils at cost. Before purchasing books, board must advertise for bids and enter into contract with successful bidder.	Contractors must give bond. If they fail to furnish books at the lowest price sold anywhere else, board shall sue on bond. Bidders submit samples which must be kept in office of county superintendent.	County uniformity may be adopted when authorized by majority vote in the county. Then a county board consisting of the county superintendent, auditor, and county supervisors, adopt textbooks for the county outside of cities and towns; said board may arrange for depositories for the distribution of books and may pay for books out of county funds and sell them to districts.
Maine (mandatory free textbooks for all public schools).	City and township school committee.	No book shall be changed within a period of 5 years, unless by vote of the town. Adopted for both elementary and high schools.	Committees contract with publishers for the purchase and delivery of books.	Committee shall purchase books, apparatus, and appliances and furnish the same free.
Massachusetts (mandatory free textbooks and supplies for all public schools).	City or township school committee.	A change may be made in books by a vote of two-thirds of the school committee at any time.	Local school committees contract with and purchase direct from publishers.	"School committees shall, at the expense of the town, purchase textbooks and supplies and loan them to pupils free of charge."
Michigan	District school board; textbooks on physiology and hygiene must have approval of State board of education.	Books adopted for 5 years.....	Publishers file in office of State superintendent samples, price lists, etc., and give bonds for $2,000 to $10,000 conditioned that they will furnish books at list price for 5 years, at the	State superintendent furnishes school officers with list of books from which adoptions may be made. When authorized by vote of the district board may furnish textbooks free.

			lowest price sold elsewhere; that books shall be equal to samples; and that they will not enter into combination to control prices. Districts may designate dealers to sell books at not exceeding 10 per cent advance on contract price.	When a family removes from a district their books may be purchased by treasurer out of contingent fund to be resold to others moving into district.
Minnesota	District school board	Books are adopted for not less than 3 nor more than 5 years and may not be changed within period for which adopted.	Publisher files samples with State superintendent and makes sworn statements of lowest prices at which books are sold elsewhere; agrees to furnish books at lowest price, to reduce prices when reduced elsewhere, and to furnish books equal in quality to samples filed; gives bond for $2,000 to $10,000.	The State superintendent supplies school officers with lists of books and prices. District board must adopt books from those offered by qualified publishers.
Nebraska (mandatory free textbooks for all public schools).	District school boards, boards of trustees of high-school districts, or boards of edution of cities.	Law does not fix period. School board must adopt books from lists furnished by State superintendent of books published by firms which have filed samples and prices with State department.	Publisher shall file with State superintendent a bond for $2,000 to $20,000 and a sworn statement of the lowest prices for which books are sold elsewhere in the United States. If publisher enters into combination to control price of books, school board may declare contract null and void. State superintendent shall prepare form of contract between publisher and school boards. Books shall not be sold elsewhere for a lower price than in Nebraska.	School boards are required to purchase books, from firms which have deposited bonds, price list, and samples with the State superintendent, and loan them free to pupils.
New Hampshire (mandatory free textbooks for all public schools).	City or township school board.	No period prescribed in the law	Local boards contract with and purchase direct from publishers.	School boards are required to purchase textbooks and supplies and loan the same to pupils free of charge. Books shall be sold at cost to pupils wishing to buy them.
New Jersey (mandatory free textbooks for all public schools).	City or township board of education.	....do	Local boards purchase direct from publishers.	School boards required to purchase textbooks and supplies and loan the same to pupils free of charge.
New York	Boards of education in cities and union free districts; in common-school districts, the legal voters by a two-thirds vote in the annual meetings.	It is not lawful to change textbooks in a city or union free district within 5 years, except by three-fourths vote of board; a textbook designated in a common-school district can not be lawfully changed, except by a three-fourths vote of legal voters.	Local boards purchase books direct from publishers or from booksellers.	Qualified voters in "union free school districts" may vote to furnish free textbooks. Cities may furnish free books.
North Dakota	District or township school board from list filed with State superintendent by publishers.	No adoption may be made for a period to exceed 5 years.	Publishers must file with the State superintendent a list of books and lowest prices and a sample of each; prices of books shall not be raised above listed price as filed; books adopted shall be from list so filed.	State superintendent furnishes price list of books to the clerks of school boards through the office of the county superintendent. Local school boards must see that books from this list are used.

TABLE 7.—*Digest of State laws relating to uniform textbooks*—Continued.

PART III.—TOWNSHIP AND DISTRICT UNIFORMITY—Continued.

State.	Board or commission authorized to adopt.	Period for which adopted, changes, etc.	Conditions, contract, etc.	Additional data.
Ohio	City, village, or township board of education from list filed by publishers with State commissioner of schools.	Adoption is for 5 years, and no change of books may be made within such period except by five-sixths vote of entire board.	Publisher files copies "with wholesale published price list" with State commissioner of schools; also copies of revised books "with published wholesale price list." A commission consisting of governor, secretary of State, and State commissioner of schools, "shall fix price at which books may be sold to school boards, not to exceed 75 per cent of published wholesale price."	State commissioner of schools furnishes each board of education a list of publishers who have filed with State commissioner, textbooks and price lists and accepted the prices fixed by commissioner; books must be purchased from these publishers. If a publisher fails to abide by his contract his books may no longer be sold in the State, and he shall forfeit the State $500, to be recovered in name of State and paid into State common-school fund. Boards may contract with local dealers to handle books. Not more than 10 per cent shall be allowed for handling books.
Pennsylvania	City and township school directors; adoption may be made upon recommendation of district superintendents or supervising principals.	In all but first-class districts adoption is for 5 years.	Books are purchased direct from publishers.	No school official shall act as agent for schoolbooks or supplies in district where employed, or was employed during year preceding. School boards shall furnish books free of charge to pupils.
Rhode Island (mandatory free textbooks for all public schools).	City and township school committees.	Books in public schools of any town may be changed by two-thirds vote of whole school committee; and in city of Providence by majority of whole committee. No change may be made in any textbook oftener than once in 3 years.	....do....	School committee of every city and township shall purchase, at expense of town, textbooks and supplies, and loan same to pupils free of charge. No person officially connected with public schools shall receive any favor for promoting sale or exchange of textbooks.
Vermont (mandatory free textbooks for all elementary public schools).	City or township board of school directors and the school superintendent.	....	....do....	No person officially connected with public schools shall receive any gratuity or compensation for recommending or procuring adoption of any book. School directors shall furnish books free of charge to pupils of elementary grades and may to pupils of secondary grades.

Wyoming (mandatory free textbooks for all public schools).	City and district school directors.	Adopted for period not to exceed 5 years.	School directors may enter into contract with publishers to supply books. Prices charged by publishers shall not exceed those charged anywhere else in United States; prices shall be reduced when reduced elsewhere. Publishers shall, before entering any contract with any district for supplying books, file with State superintendent a bond ranging from $2,000 to $20,000.	Books are paid for out of school land income fund. Any contract with a publisher who enters a combine for controlling prices shall become null and void. State superintendent shall distribute price list of books to school officials.

APPENDIX.

The article following, on "History of the State Printing of Textbooks in California," was written by Supt. Hyatt at the request of the Commissioner of Education to present the history of the 30 years of experience in printing textbooks in California from the standpoint of the present State department of education. The article shows clearly that the State superintendent believes thoroughly that the plan is successful and that other States might well adopt the same scheme. On the other hand, there are many prominent educators and others in California and elsewhere who are strongly of the opinion that the plan is not a success, that the cost of the books produced when the interest on the investment and all overhead charges are included is greater than the publishers' net prices, and that in quality they are "decidedly inferior as to material and construction."[1] The bureau has not made a "first-hand" investigation, and therefore is not prepared to recommend the plan to other States as a success. Mr. Hyatt's article points out clearly the weaknesses of the plan, as operated in the past, which caused the greatest dissatisfaction in the State and the passage of legislation intended to eliminate the dissatisfaction. Whether or not the present plan, which includes the legislation of 1913, will prove wholly satisfactory remains for the future to decide. It is certain that any State, before following California's lead in this matter, should make a thorough study. The schoolbook investigating committee of the 1914 Georgia Legislature did so and reported in opposition to its adoption in Georgia. Kansas did so and was well enough satisfied to decide to try a similar scheme. The article by Supt. Ross on the movement in Kansas was prepared also at the special request of the commissioner of education.

These are the only two States that have tried printing their own public-school textbooks. The Province of Ontario has done so for some years. The Massachusetts Legislature (1915) has instructed the State board of education to make a study of the subject and report back in 1916 on the advisability of its adoption in that State. Bills proposing State printing of textbooks were introduced into at least five State legislatures in the 1915 sessions. None, however, were passed.

HISTORY OF THE STATE PRINTING OF TEXTBOOKS IN CALIFORNIA.

By EDWARD HYATT, *State Superintendent of Public Instruction.*

What is known as the California textbook system began when the legislature of 1883 submitted the Perry amendment to the constitution, providing for State publication of textbooks in the following words:

SECTION 7. The governor, superintendent of public instruction, and the principals of the State normal schools shall constitute the State board of education and shall compile or cause to be compiled and adopt a uniform series of textbooks for use in the common schools throughout the State. The State board may cause such textbooks when adopted to be printed and published by the superintendent of State printing at the State printing office, and when so printed and published to be distributed and sold at the cost price of printing, publishing, and distributing the same. The textbooks so adopted shall continue in use not less than four years.

[1] For the principal arguments against State publication see the articles by A. E. Winship, editor of the Journal of Education, and W. E. Pulsifer, president of D. C. Heath & Co., referred to on p. 67 in the bibliography in this bulletin.

This was adopted by the people by an almost unanimous vote in November, 1884, and was followed by the necessary enabling legislation in 1885. By 1886 the State board had prepared and the State printer had published four books, by use of an appropriation of $170,000, of which $20,000 was for compiling and $150,000 for plant, material, and labor. The feeling of that time is interesting to observe as reported by W. T. Welcker, the superintendent of public instruction, in his report to the governor in 1886:

> The opponents of this measure (the Perry amendment), although they were not successful, were able and fiercely zealous. It was indeed a novel experiment and a great departure from all known methods. In opposition it was urged that the State board of education would prove incompetent; that granting their ability to discharge their appropriate duties, this was a work of expertism of a rare and special kind; that the preparation of school textbooks was a trade in itself which required years of training in that particular business. * * *
>
> So much scandal has gathered about the supply of the public schools with textbooks, so many charges of corruption alleged to have been done by the book houses among school officers, school boards, and legislatures, that many persons would be well satisfied with textbooks published under the scheme now under consideration even were they somewhat inferior in quality and more expensive in cost than those heretofore in use. But the cost of the books is one of the most gratifying things connected with the enterprise. The cost at Sacramento, as determined by the State board of education of the books now furnished, is as follows:

California State books in 1886.

	Cents.
Speller and word analysis	20
First reader, 128 pages	15
Second reader, 228 pages	30
Third reader, 512 pages	40

Two years later the legislature, upon the advice and request of the State board of education, made another appropriation of $165,000; $15,000 for compiling and $150,000 for plant, materials, and labor, and authorized the publication of a number of additional books. Other appropriations were made for the State printing office from time to time in subsequent years, for machinery, buildings, etc., but it is not possible to divide the expense accurately between textbooks and other State printing.

This gets us fairly into the first period of the California textbook system, which may be called the *period of State publication and local authorship*. It continued from 1883 to 1903, or 20 years. It was a time of contention, strife, and abuse, very disquieting to those who were responsible for the enterprise.

The newness of the scheme shocked peoples' minds and roused their antagonism. The mechanical difficulties to be overcome were innumerable. Some editions were badly bound. Some books were poorly written. Every teacher preferred to use some favorite textbooks. There were hundreds of book dealers in the State who were deprived of the profits of retailing books. The great publishing houses naturally opposed the whole idea of State publication. The leading educators almost universally followed suit. Institutes, clubs, and associations condemned it. No educational gathering was complete that did not take a fall out of the State textbooks. Undoubtedly, if it had not been planted deep in the constitution itself, State publication would have gone by the board during this period.

The close of the period found the State publishing 14 textbooks, as shown in the following table:

California State books in 1903.

Name of book.	Cost price at Sacramento.
Revised first reader	$0.16
Revised second reader	.28
Revised third reader	.44
Revised fourth reader	.53
Speller	.25
Primary number lessons	.20
Advanced arithmetic	.42
Lessons in language	.25
Revised English grammar	.47
New United States history (grammar school)	.81
Elementary geography	.50
Advanced geography	1.02
Physiology	.60
Civil government	.46

These books were prepared under the general direction of the State board of education. As a matter of fact, it was quite impossible for the busy and overworked men who composed the board (the superintendent of public instruction and the presidents of the State normal schools) to do the work of writing textbooks, so various plans were tried. W. L. Willis, a teacher and newspaper man of Sacramento, prepared the speller, which remained in use for 20 years. H. C. Kinne, a veteran teacher of San Francisco, offered a set of readers which were adapted to meet the ideas of the board. F. H. Clark, of the Los Angeles High School, was engaged to prepare a history. At least a dozen other teachers of the State were engaged in one way and another in the preparation of these earliest books. Among them were William Carey Jones, Frank Morton, Volney Rattan, George R. Kleeberger, Sarah P. Monk, Elizabeth Wilson, Ruth Royce, and Cornelia Walker.

At last the actual work was placed in the hands of an editor in chief, W. H. H. Raymond, with various expert assistants from time to time. Among these were Miss Anna Murphy, who is now Mrs. Edwin Markham, and Mrs. Mary W. George, who is now on the faculty of the San Jose State Normal School. This editorial board worked at the State capital in connection with the office of the superintendent.

During the 20-year period 4,000,000 books were made and sold to the people for a million and half of dollars.

During the administration of Gov. H. H. Markham, while Thomas J. Kirk was superintendent and Tirey L. Ford attorney general, the law and the constitution were very carefully scrutinized, and it was determined that although the books themselves must be manufactured at the State printing office, there was nothing in the constitution that required local authorship, nothing to prevent the State board from leasing or buying copyrights and plates of books already published for the use of the State printer.

This construction was hailed as a godsend. Thus could the teachers of the State have the very best books extant, from the most meritorious, successful, and popular authors, selected in the open markets of the world. The legislature of 1903 passed a new set of enabling laws, providing for the following plan:

A standing committee of the State board of education, composed of the governor, the superintendent, and a third member elected by the board, shall have direct charge of the textbook business. This State textbook committee was given a secretary with a salary of $2,400, which was regarded as a wild extravagance at the time. Under the general direction of the board it should select books, lease plates, do all necessary editorial work, and report to the board. The books when printed should be sold to the children at cost, as before. A textbook appropriation of $20,000 was made for the use of the textbook committee. About half of this was still on hand when free textbooks were adopted.

The new committee went to work enthusiastically. It had difficulty at first in getting the publishers to lease the plates of their successful books. They were chary of the scheme. Inertia was to be overcome. The first royalties were high, ranging from one-fourth to one-third the list price of the book. This was the period of State publication and leased copyrights. It lasted from 1903 to 1913. Public clamor somewhat died down. The book companies were ameliorated. The teachers had the same books as other people. The dealers had accepted the situation.

The chief storm center at this time was the cost of the books to the children, alleged to be caused by their frequent change, although the law requiring no change in less than four years and no book contract for less than four years was strictly adhered to. Several of the books stood unchanged from a dozen to a score of years. However, it was found that when a book had been in use for four years so many people were fighting it that it must needs be changed. During the latter part of this period determined efforts were made to lower the cost. The publishers very generally entered into competition and the royalties were reduced from about 20 per cent to about 15 per cent of the list price. No headway, however, could be made in lowering the manufacturing cost. In general, the price to the children was somewhat below the publishers' list price for the same book, and the book in most cases was specially adapted to California use by changes and supplements in the plates. The following table shows books, costs, royalties, and prices at the close of the period:

California State books in 1913.

Books.	Cost of manufacture.	Royalty.	Cost price at Sacramento.
Primer	$0.172	$0.048	$0.22
First reader	.152	.048	.20
Second reader	.1875	.0525	.24
Third reader	.31	.06	.37
Fourth reader	.33	.09	.42
Fifth reader	.33	.09	.42
Speller—Book I	.165	.025	.19
Speller—Book II	.165	.025	.19
First book in arithmetic	.2075	.0525	.26
Advanced school arithmetic	.32	.09	.41
English lessons—Book I	.20	.08	.28
English lessons—Book II	.34	.12	.46
Introductory history	.30	.15	.45
Brief school history	.52	.15	.67
Introductory geography	.44	.09	.53
Advanced geography	.58	.15	.73
Civics	.375	.125	.50
Writing—Book I	.05	.01	.06
Writing—Book II	.05	.01	.06
Writing—Book III	.05	.01	.06
Writing—Book IV	.05	.01	.06
Writing—Book V	.05	.01	.06
Primer of hygiene	.17	.06	.23

The State printer and the State board of education in fixing prices all these years had added to the actual cost a small percentage to build up a fund to repay the State its original outlay for the printing plant. At the end of the period this accumulated school-book fund amounted to about $200,000. It was then added to the appropriations for free books, and expended for that purpose.

The plan followed for adopting books and getting them to the children during this period was as follows:[1]

The textbook committee had direct charge of all the textbook affairs under direction of the board. When the contract for the plates of a textbook is about to expire, this committee invites bids from publishing houses for suitable books, renewing or substituting the contract.

[1] This plan is, of course, no longer in operation.

Half a dozen or more expert teachers of the State are designated as readers, and paid about $25 each to make a detailed study of all books offered in a given branch. The State board meets and considers the various books, giving opportunity for the agents of the books to present arguments, hearing the reports of the readers, and admitting any other testimony or opinion that may be offered. Then it chooses the book by ballot and instructs the textbook committee to make contract accordingly. The complete plates in duplicate are furnished to the State printer by the publishing company gratis, all changes desired by the committee being incorporated.

The books are then manufactured in the State printing office and sold by the superintendent of public instruction to the dealers and school officers of the State. The publishers are paid quarterly from the proceeds of the sales, so much royalty for each book sold. The prices are fixed by the State board of education annually upon the cost reports of the State printer. * * *

Before a dealer can buy books from the State office he must sign an affidavit by which he agrees that he will not sell the books at a price higher than that fixed by the State board of education, and also that he will not sell the books to purchasers outside the State. Upon signing it, the dealer must forward it to his county superintendent of schools, who, in turn must indorse it and forward it to the State office.

The third and last period may be called the time of *State publication, leased copyrights, and free distribution.* It extends from 1913 to the present time.

The legislature of 1911 submitted to the people a constitutional amendment known as the Shanahan amendment, which came to vote in November, 1912, and despite the customary opposition was carried by a great majority. It read as follows:

SECTION 7. The legislature shall provide for the appointment or election of a State board of education, and said board shall provide, compile, or cause to be compiled and adopt a uniform series of textbooks for use in the day and evening elementary schools throughout the State. The State board may cause such textbooks, when adopted to be printed and published by the superintendent of State printing at the State printing office, and wherever and however such textbooks may be printed and published they shall be furnished and distributed by the State free of cost or any charge whatever to all children attending the day and evening elementary schools of the State under such conditions as the legislature shall prescribe. The textbooks so adopted shall continue in use not less than four years without any change or alteration whatsoever which will require or necessitate the furnishing of new books to such pupils.

It was the intention and expectation of all who had to do with this amendment that it would not go into effect until the beginning of a new fiscal year and after proper enabling legislation had been effected. Attorney-general Webb, however, after taking some time for deliberation and investigation, rendered an official opinion stating—

(1) That the old State board of education and the textbook committee are abolished and there can not be a new plan until it is created by legislative action.

(2) That the free textbooks should be furnished the schools at once, without waiting for enabling legislation or anything else.

(3) That all of the functions of the State educational system devolved upon the superintendent of public instruction, as the educational representative of the people.

Thus the superintendent faced an extensive, complex, and difficult task, to furnish free textbooks by hundreds of thousands to the impatient schools and children of a great State; to do it without funds, without precedent, without previous plan, and at once. The State printer put his great plant to work day and night at fullest capacity. The legislature made some emergency appropriations. A scheme of distribution was devised that worked well and that has never been changed in principle since. The books went out in carload lots and reached every nook and corner of the State, in every desert and mountain and plain, from Oregon to Mexico. The teachers of the State were helpful and patient, making their first demands as light as possible, and when necessary doing without the books that were slow in making.

The new State board of education was organized in the fall of 1913. It was a lay board of seven members, appointed by the governor and generously furnished with appropriations for remuneration, expenses, equipment, and all the expert assistants and office helpers that it desires. Up to the present time it has made no changes in

textbooks or in manner of handling them, but it is admirably adapted for investigating and wisely choosing books through its experts in future and for handling the commercial and industrial problems that come up in connection with their production, distribution, and use.

The following table shows the books manufactured at the present time, July, 1915, with their cost and selling price to those who buy. Private schools like to buy the State books. A very few parents buy so that their children can have duplicate books at home or so that they can use individual books. Sometimes children buy to replace those they have themselves lost or destroyed.

California State books in 1915.

Name of book.	Cost price at Sacramento.
Primer	$0.15
First reader	.15
Second reader	.18
Third reader	.19
Fourth reader	.24
Fifth reader	.24
Speller—One	.14
Speller—Two	.14
First arithmetic	.18
Advanced arithmetic	.23
New English lessons—One	.28
New English lessons—Two	.26
Introductory history	.31
Brief history	.41
Introductory geography	.32
Advanced geography	.54
Hygiene	.18
Civics	.31
Writing book—One	.04
Writing book—Two	.04
Writing book—Three	.04
Writing book—Four	.04
Writing book—Five	.04

It will be seen that the above prices are very much lower than those of the regular publishers. A comparison is not quite fair, however, in that some of the overhead expense, as the salaries of some managers and editors, the cost of exploiting, the interest and depreciation of plant, the losses by unsuccessful books, is not included in reckoning the above costs. We believe, however, that the State is getting its service of textbooks at a saving of at least 25 per cent, everything considered, over what it would cost if given to private publishers in the regular way.

Certainly the State would not recede from or give up its textbook system under any circumstances. It is running more smoothly, giving more general satisfaction, and meeting with less opposition than ever before in its history. It is alleged by some that our books are not so well bound as those of private publishers. We find, however, that they last as long in actual use as any books.

The present method of adopting, making, and distributing textbooks may be briefly sketched thus:

The preliminary investigation of the textbooks offered to the State board of education by publishers and authors for adoption is made by the three commissioners of education and the superintendent of public instruction. They spend some months in the study and are free to consult and to employ expert teachers actually at work in the schools of the State upon any phase of the examination in which they need help. Finally, they report to the board. The board gives audience to the representatives of every book offered, questions them, listens to briefs, recommendations, and all other testimony offered. It listens to the reports of the commissioners and the expert readers. At last the board makes choice and contracts for the use of the successful

plates for four or eight years at a certain royalty for each book distributed, stipulating any additions, changes, or California supplements that may be desired at the expense of the publishers. The publisher furnishes the completed plates in duplicate to the State printer, who prints the books in 25,000 editions and turns them over to the warehouse.

At the end of each year the teacher or principal sends in a requisition for the additional books needed for the next year, accompanied by a list of the books already on hand. In response the books are sent out to the school clerks by the superintendent of public instruction, with parcel-post, express, or freight rates prepaid by the State. Some shipments consist of half a dozen books by mail to a remote school on a mountain top; others are whole carloads to some city in the valley or on the sea. Later supplemental requisitions are filled when necessary. The necessity and the reasonableness of the demands are verified by requiring all the requisitions to be approved and signed by the clerk of the school and the county superintendent.

When the clerk receives the books for his school he turns them over to the teacher, principal, or superintendent, who in turn distributes them to the children, keeps a record of them, and is responsible for their care and preservation. At the end of the term the books are collected, repaired, re-covered, fumigated, and ready for redistribution at the opening of the new term.

The cost for the the first two and one-half years, including the original stocking up of the schools, was roughly half a million dollars. There are about 400,000 children in the schools, so the total cost per child per year is appropriately 50 cents. This includes the expense of distribution, but does not include such additional or supplementary books as are purchased by the local schools. The law forbids requiring pupils to buy any books whatever.

The question of royalty is an interesting one for the future. The royalty at present is about 15 per cent of the list price of the books or about 50 per cent of the cost of manufacture. Since the beginning of the plan for leasing copyrights the State has expended $530,756.11 for royalties, or something less than $50,000 per year. To the ordinary man it seems as if this great sum could be saved in future if the books were written by our own California teachers. However, there are two sides to the matter. As a matter of cold fact, the books in the past cost quite as much under the local authorship plan as they have since. It is possible that we could do it better now, however. The local authors have to be paid in one way or another; and the editorial work, the mechanical work of preparing the books for publication, add to the cost. The royalty represents the author's compensation, the expense of preparing the plates, the cost of exploiting the book into a well-known and popular one that California would accept, the loss by unsuccessful books, and the publishers' percentage of profit. There is room for argument as to whether or not the payment of royalty is the cheapest and best way to try out multitudes of textbooks in order to get the successful and workable ones. Probably the future will see a course somewhere between the two extremes. Some books lend themselves well to local preparation and others do not. It is well to leave the matter in an elastic form, ready to adapt to future ideas, for the future will bring changes no fewer than those of the past.

STATE PUBLICATION OF TEXTBOOKS IN KANSAS.

By W. D. Ross, *State Superintendent of Public Instruction.*

From the organization of the State school system up to 1897, Kansas school boards in rural districts as well as in cities had the power to select the books used in their schools, except that in 1885 a law was enacted providing for optional county uniformity. This law was, however, taken advantage of by very few counties. In 1897,

owing to a popular feeling that school books were costing more than they should, as well as on account of the frequent changes that took place and the objectionable methods of some of the book companies in bringing them about and securing adoptions, a law providing for State uniformity of common-school textbooks and fixing a maximum price was passed. In 1899 the law was extended to cover high-school texts.

This legislation remained in force until 1913. But it was always subject to more or less criticism. The complaints came from many who believed that the prices were so low that the book companies could not or would not submit their best books, and from others who felt that even the best books submitted were sometimes not selected. The first feeling was well founded, but the second, except in a few cases, much less so.

The result of constant dissatisfaction and agitation, however, was the passage, in 1913, of a law making an appropriation of $150,000 for additional room and equipment for the State printing plant, and providing for the State publication of textbooks.

The only contracts upon common-school books that have expired since the enactment of the law were those on the primer, Kansas history, and agriculture. And these books have now been published by the State.

The primer was written by a Kansas primary teacher and illustrated by a New York artist at a total cost to the State of $4,500 for perpetual Kansas rights—$2,000 for the manuscripts and $2,500 for illustrating, including plates. The author of the Kansas history was a Kansas county superintendent who received $3,500 for a five-year copyright privilege on the manuscript, including illustrations, but not plates. The agriculture was prepared by various members of the Kansas State Agricultural College without cost to the State except for the expense of securing pictures—a total of some $200.

In addition to these books a volume of English classics for the seventh grade and another for the eighth grade have been published. These books were made up mostly of uncopyright material, with a few selections upon which copyright privilege was purchased, at a total cost of $500, including editorial work.

The primer contains 144 pages and retails for 14 cents.

The Kansas history contains 250 pages and retails for 25 cents.

The agriculture contains 473 pages and retails for 35 cents.

Each volume of classics contains 384 pages and retails for 20 cents.

For carrying on the work of State publication the law created the State school-book commission, consisting of the State superintendent of public instruction, the president of the State normal school, the president of the State agricultural college, the State printer, the president of the State board of agriculture, and two other persons to be appointed by the governor.

The 1913 act provided that:

SECTION 3. The said school-book commission shall, as soon as practicable, adopt, write, select, compile, or cause to be written, or compiled, or purchase copyrights for a complete series of school textbooks for use in the public schools in the State of Kansas, or may contract for the right to publish any or all of such books on the payment of an agreed royalty therefor. The said series of school textbooks shall consist of one spelling book; one primer; one each, first, second, third, fourth, and fifth reader; one each, elementary, intermediate, and advanced written arithmetic; one oral arithmetic; one each, elementary and advanced geography; one each, elementary and advanced English grammar; one each, elementary and advanced physiology and hygiene; one history of the United States; one history of the State of Kansas; one civil government and Constitution of the United States, and of the State of Kansas; one elements of agriculture and stock raising; one system of penmanship; textbooks containing collection of masterpieces of American and English literature, one each, for the fifth, sixth, seventh, and eighth grades, and such other textbooks as, in the judgment of the school-book commission, may be desirable to publish or procure for use in the public schools of the State.

SECTION 4. The State school-book commission shall have the power, and is hereby authorized to have written or compiled, or to purchase the several textbooks, and manuscripts to be used in the public schools, and shall fix the remuneration of authors and compilers, and compensation for other necessary services in the preparation and

publication of said books. Said State school-book commission shall also have the power to procure copyrights for the State of Kansas of any school textbook, manuscript, or subject matter thereof, authorized by the provisions of this act, and to contract with authors and publishers upon a royalty basis, upon an exclusive right to publish and use in the State of Kansas any school textbook written or published by them. The State school-book commission shall furnish to the State printer copy and design for all diagrams and illustrations to be used in any school textbook published by the State under the provisions of this act.

SECTION 5. The printing of all textbooks published by the State, and provided for in section 3 of this act, and all mechanical work connected therewith, shall be done by and under the supervision of the State printer, at the State printing plant.

It will be observed that in the sections quoted above high-school books were not specifically mentioned, and since only such parts of the 1897–1899 textbook law were repealed as were in conflict with that of 1913, it followed that if high-school texts were adopted instead of published, it could be only under the maximum price restrictions of the earlier act.

On this account and for other reasons the legislature of 1915 amended section 3 of the 1913 act, as quoted above, to read as follows:

The said State school book commission shall, as soon as, and when practicable, print, publish, or provide for the publication of a complete series of school textbooks, as hereinafter mentioned, for use in the public schools, including the high schools, in the State of Kansas. Also they shall provide, by adoption, under the provisions of the law, for such books of the hereinafter-mentioned series as they find it impossible or impracticable to print or publish. They may also write, select, compile, or cause to be written or compiled, or purchase the copyright or contract the right to publish all such books by the payment of an agreed royalty therefor. The said series of school textbooks shall consist of one spelling book, one primer, one each first, second, third, fourth, and fifth reader; one each, elementary and advanced arithmetic; one each, elementary and advanced geography; one each, elementary and advanced grammar; one each, elementary and advanced physiology and hygiene; a primary and an advanced history of the United States; a history of the State of Kansas; one civil government of the United States and of the State of Kansas; one elements of agriculture and stock raising; one system of penmanship; a graded system of drawing books; textbooks containing collections of masterpieces of American and English literature, for the fifth, sixth, seventh, and eighth grades; algebra (elementary and advanced); geometry (including both plane and solid); Latin grammar; Latin exercises; Cæsar; Cicero; Virgil; English composition; English history; English literature; ancient history; medieval and modern history; rhetoric; botany, chemistry; zoology; word analysis; geology; physical geography; complete texts in German and French (including exercises, grammar, readers, and classics); descriptive astronomy; and a bookkeeping text. Such books to be equal in subject-matter, material, binding, and mechanical execution and approximately in size to the books named in sections 7318 and 7833 of the general statutes of Kansas of 1909. The said State school book commission may adopt, print, or publish, as in their opinion may be desirable or practicable, other textbooks in addition to the books enumerated above and may approve textbooks in subjects not enumerated above for special courses, to meet the needs and requirements of the courses of study prescribed for use in the public schools, including the high schools of the State; provided, that the State school book commission shall have authority to so vary the period of adoption for high school classics as to meet the college entrance requirements: *Provided further*, That the State school book commission shall not contract with any person, company, or corporation for any of the books provided for in this act at a price in excess of the lowest price at which such book or books are sold for use in any other State, county, city, or district. The distribution of all textbooks adopted under the provisions of this section shall be according to the provisions of section 7820 of the general statutes of Kansas of 1909 except as relates to the 15 per cent commission, allowed in this act: *And provided further*, That any person, persons, company, or corporation who shall contract to furnish textbooks adopted under the provisions of section 1 of this act shall take up any textbooks previously in use and displaced by said adoption which may be offered to the contracting publishers or their agents within one year after the beginning of said contract and shall allow for such displaced books in exchange for new books in the same branch an amount not less than the highest amount allowed on the lowest price in any other State, county, city, or district, and which said amount shall be specifically set out in each bid. Said exchanged books to be returned to the publishers or their agents

within one year after the beginning of said contract according to their direction and at the expense of the said contracting publishers.

Under this provision the State school book commission has just completed the adoption or approval of a complete list of high-school texts for the five-year period beginning May 1, 1915. The prices at which these books are to be furnished to dealers by the various publishers are uniformly 75 per cent of the publishers' list price f. o. b. Chicago, with the privilege on the part of the State of immediate publication of the geometry from plates furnished by its publisher at a royalty of 28 per cent on the list price, and a similar privilege as to the composition and rhetoric, physics, and Latin prose composition at the end of three years. It is, therefore, the plan of the State to print at once geometries for the use of pupils beginning next September.

In addition to those previously mentioned as having already been published, the commission is planning to publish as rapidly as possible a complete series of common-school books, existing adoptions upon all which expire within the next two years.

Owing to the limited appropriation of $100,000 available for publication purposes, however, it will probably be impossible to provide for the printing of more than half the list within that time.

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See American school board journal, "Textbook news," each issue, for latest information.

BULLETIN OF THE BUREAU OF EDUCATION.

[NOTE.—With the exceptions indicated, the documents named below will be sent free of charge upon application to the Commissioner of Education, Washington, D. C. Those marked with an asterisk (*) are no longer available for free distribution, but may be had of the Superintendent of Documents, Government Printing Office, Washington, D. C., upon payment of the price stated. Remittances should be made in coin, currency, or money order. Stamps are not accepted. Numbers omitted are out of print.]

1906.

*No. 3. State school systems: Legislation and judicial decisions relating to public education, Oct. 1, 1904, to Oct. 1, 1906. Edward C. Elliott. 15 cts.

1908.

*No. 5. Education in Formosa. Julean H. Arnold. 10 cts.
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*No. 1. A course of study for the preparation of rural-school teachers. F. Mutchler and W. J. Craig. 5 cts.
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*No. 8. Peace day. Fannie Fern Andrews. 5 cts. [Later publication, 1913, No. 12. 10 cts.]

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*No. 22. Bibliography of industrial, vocational, and trade education. 10 cts.
*No. 23. The Georgia club at the State Normal School, Athens, Ga., for the study of rural sociology. E. C. Branson. 10 cts.
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No. 39. Elementary industrial school of Cleveland, Ohio. W. N. Hailmann.
*No. 40. The reorganized school playground. Henry C. Curtis. 10 cts.
*No. 41. The reorganization of secondary education. 10 cts.
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*No. 43. Agriculture and rural-life day; material for its observance. Eugene C. Brooks. 10 cts.
*No. 44. Organized health work in schools. E. B. Hoag. 10 cts.
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*No. 46. Educational directory, 1913. 15 cts.
*No. 47. Teaching material in Government publications. F. K. Noyes. 10 cts.
*No. 48. School hygiene. W. Carson Ryan, jr. 15 cts.
No. 49. The Farragut School, a Tennessee country-life high school. A. C. Monahan and A. Phillips.
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No. 58. Educational system of rural Denmark. Harold W. Foght.
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*No. 27. Agricultural teaching. 15 cts.
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UNITED STATES BUREAU OF EDUCATION
BULLETIN, 1915, NO. 37 . . . . . WHOLE NUMBER 664

SOME FOREIGN EDUCATIONAL SURVEYS

BY

JAMES MAHONEY
SPECIAL COLLABORATOR, HEAD OF ENGLISH DEPARTMENT
SOUTH BOSTON HIGH SCHOOL, BOSTON, MASS.

WASHINGTON
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Harvard University
Nov. 10, 1910.
From
United States Government.

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WASHINGTON, D. C.
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10 CENTS PER COPY

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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, September 10, 1915.

SIR: The large sums paid for education in the United States, the large proportion of the population enrolled in public schools of lower or higher grade, the feeling that the public welfare and private weal alike depend upon the efficiency of the schools, the demand that at least all schools supported by public taxation shall be constantly remodeled and readjusted to meet the needs of modern life, and the keener spirit of criticism produced by a more general study of the principles and methods of education, have all contributed to the interest in educational surveys of State, county, and city school systems and surveys of individual institutions of higher learning. Between 40 and 50 such surveys, more or less formal, have been made in this country within the last few years, and many others have been planned. Like everything connected with public education, the principles of the survey are universal. Wherever made, the legitimate purpose of the survey is to bring about a more economic use of money and equipment and a better adaptation of educational agencies to educational needs. Therefore, educational surveys and investigations in other countries have a vital interest for students of education and education officers in this country. For this reason I requested Mr. James Mahoney, head of the English department in the South Boston High School, Boston, Mass., and a special collaborator in this bureau, to prepare a brief account of some of the more important foreign surveys. This he has done with much care and with such thoroughness as the available material would permit, and has embodied the results in the accompanying manuscript. I recommend that the manuscript be published as a bulletin of the Bureau of Education.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

SOME FOREIGN EDUCATIONAL SURVEYS.

The educational surveys of which some account is given in the following pages do not by any means represent all the foreign investigations that have been made; it is believed, however, that they will serve to acquaint American students of education with certain foreign types, and at the same time throw some light on the history of surveys and of progress in education.

Foreign surveys differ from the American in point of authorization in that (*a*) practically all are made under Government auspices, (*b*) and the work is done either by (1) a royal commission, (2) a select parliamentary committee, or (3) under the direction of a minister of education. The findings of the commissions, accordingly, carry with them the weight of Government authority: In the schools they are conclusive; and by the general public they are received with deference.

The scope of the foreign survey is, in general, wider; it looks less to local conditions than the American survey. The method of the European survey is (*a*) by oral testimony of school directors, inspectors, and others who have knowledge of schools; (*b*) personal investigation of the schools by recognized experts; (*c*) by circular letters or questionnaires (1) to all persons directly concerned with the schools in question, (2) to eminent men competent to judge of educational matters; (*d*) through personal investigation of schools resembling those under investigation in all the other progressive nations.

Even a slight examination of these reports will reveal the reason for the governmental interest in surveys; namely, international industrial competition, and the disclosure of the fact that industrial progress is dependent upon education. It is interesting in this connection to note that the American survey movement, and the efforts to reorganize American schools in industrial and vocational ways, are coincident with a realization by the people of the United States of the wonderful progress made by Germany in vocational education, and her consequent advance in international industry and commerce.

The foreign surveys contain little special advocacy of the older or of the newer type of education. They show a remarkable balance of judgment. Those who have directed foreign surveys have, indeed, insisted that the children of the great masses of the people, girls

as well as boys, shall receive such training as will enable them to earn their daily bread and do their share of the nation's industrial work; but they also insist that the children be trained in those moral, social, and civic virtues which make a nation truly great, i. e., they must receive general as well as specific education; and that true culture must guide and balance vocational skill, which, reduced to its lowest terms, leads to selfish individualism, not to national greatness.

A SWISS SURVEY.

Schul-Enquête. Ph. A. Stapfer, Helvetische Minister der Künste und Wissenschaften, 1799. Bundesarchiv, Abteilung Helvetik, Bern (Bde. 1470, 1471, 1472).

This survey was made in accordance with a decree of the Helvetian Directory of May 2, 1798, which directed Minister Stapfer to reorganize the school system. In order that he might attempt this wisely, he desired to know the facts regarding the different cantonal school arrangements. The most noteworthy answer to the questionnaire sent out by Minister Stapfer referred to the need of greater appropriations for the schools.

ENGLISH SURVEYS.

The more decentralized the school administration, the more necessary is the educational survey in the American sense of that term; so England, with the most decentralized series of schools—one could hardly speak of an educational system in England, at least until recent years—should have had more surveys than any other European country. During the years 1861–1869, for example, years during which very few surveys were made elsewhere, the following English surveys were made:

I. Surveys by select committees:

(*a*) Report from the select committee appointed to inquire how the education of destitute and neglected children may be most efficiently and economically assisted by any public funds, 1861.

(*b*) Report into the constitution of the Committee of Council on Education, and the system under which the business of the office is conducted; and also into the best mode of extending the benefits of Government inspection and the parliamentary grants to schools at present unassisted by the State, 1865.

(*c*) Report by same committee for following year, 1866.

(*d*) Report from select committee on the Endowed Schools Bill, 1868–69.

(*e*) Report into the practice of the Committee of Council on Education with respect to the reports of Her Majesty's inspectors of schools, 1864.

(*f*) Report from committee into the constitution and working and into the success of the schools of art, 1864.

(*g*) Report in regard to provisions for giving instruction in theoretical and applied science to the industrial classes, 1867–68.

II. Reports of commissioners:

(*a*) In regard to the state of popular education, for the purpose of obtaining information as to the state and progress of education in dissenters' schools, 1861.

(*b*) Report in regard to state of popular education in England, 1861.

(*c*) Report in regard to certain colleges and schools, as to their revenues and management, the studies pursued, and the instruction given therein.

(*d*) Schools inquiry report (described more fully below) to inquire into the education given in schools in England, not comprised within Her Majesty's two recent commissions on popular education and on public schools, 1867–68.

The following are among the more noteworthy of the English surveys; it will be observed that England has been especially fortunate in securing the services of her ablest public men on her educational commissions and in generally having as chairman the ablest and most eminent man of the realm.

Report from the Select Committee on the Education of the Lower Orders, ordered by the House of Commons to be printed, March 17, 1818. 2 vols.; vol. 1—324 pages; vol. 2—495 pages.

Testimony was taken by the committee, with Henry Brougham in the chair; and circular letters (questionnaires) were also sent out, especially to clergymen, concerning which the committee writes:

It is impossible to bestow too much commendation upon the alacrity shown by these reverend persons in complying with this requisition and the honest zeal which they displayed to promote the great object of universal education.

The results showed that the condition of the education of the poor was very bad; new schools ought to be built for all the children, not for those belonging to the established church alone. In this survey the concern manifested is for buildings and teachers, and industrial education is not taken up. This fact is not surprising in view of the terrible drain on English resources from the long wars with Napoleon.

Report from the Select Committee on the State of Education, ordered by the House of Commons to be printed, August 7, 1834. (257 pages.)

Lord John Russell presided at the hearings of this committee. Some of the recommendations are:

Habits of labor should be encouraged among the children in the rural districts in conjunction with the study of reading and writing; the Government should provide better books; corporal punishment is permissible in cases of violation of good morals, but emulation is the best mode of instruction; system of payment by children for education is decidedly preferable to gratuitous instruction; the education clauses in the factory acts are a dead letter, because of an insufficient number of schools.

Germans coming to England are generally better educated than Englishmen of the same grade; introduction of works of industry would be in the highest degree bene-

ficial in the country and town; children learn better when employed partially in industry than when employed solely in the school; Dr. Bell's plan for uniting industry with education has great advantage; for example, in printing, rope making, gardening, etc.

Children in the manufacturing districts of Lancashire and Cheshire are better taught than those in agricultural districts. Music has value as part of popular instruction; and the Government should assist in establishing libraries.

Attention is called to the fact that these recommendations were made in 1834.

Report of the Commissioners Appointed to Inquire into the State of Popular Education in England, presented to both Houses of Parliament by Command of Her Majesty, London, 1861. 6 parts: Part 1—707 pages; part 2—634 pages; part 3—598 pages; part 4—414 pages; part 5—473 pages; part 6—613 pages.

This extensive report of the commission (presided over by the Duke of Newcastle) furnishes an account of the education of the independent poor, of pauper children, of vagrants and criminals.

Considerable attention is given to the industrial education, which was provided for the poorest classes.

Report from the Select Committee on the Education of Destitute Children, ordered by the House of Commons to be printed, July 23, 1861, pp. XVIII+234+Index, 38.

Consists chiefly of testimony of persons having knowledge of those schools, given before the select committee, with Sir Stafford Northcote in the chair. The following extracts will give an idea of the way the proceedings were conducted:

Mr. Lock being examined:

Q. You are the honorary secretary of the Ragged School Union?
A. Yes; I have been so since the foundation of the society, in 1844.
Q. Will you tell us shortly what the Ragged School Union is?
A. The society was formed in 1844 for the encouragement and support of ragged schools for the outcast and destitute poor of London.
Q. Is it confined to London?
A. It is confined to London.
Q. And it is confined to ragged schools?
A. To ragged schools for those who have no other means of getting any education.
Q. Does it include refugees?
A. We have 16 refugees in connection with us at present.

* * * * * * *

Q. Will you tell us for what class of children these schools are intended?
A. For a very large class of children in London who are not paupers or criminals; they are the children of costermongers who sell in the streets and at stalls, fruit, vegetables, etc., or of those who go with barrows about the street; they are the children of brickmakers, a large class about Nottinghill and elsewhere; of pig feeders, persons earning a good deal of money but altogether careless about the education of their children; the children of rag dealers and Spitalfield weavers out of employment; and many others of uncertain occupations, who are

in a dreadful state during the winter months; sometimes the children of laborers who are out of work in frost or bad weather, or who are thrown out of work at the docks frequently by ships not arriving; the children of knackers and cats' meat men; of slop tailors, who form a large number, who earn a bare subsistence, and who will not condescend to accept parochial relief; the children of washerwomen, who go out to work in the daytime, neglecting their children.

* * * * * * *

Q. Have you any kind of information as to the attendance of the children at the schools?

A. Each local committee and teacher keeps a record.

Q. What steps are taken in regard to cleanliness?

A. Most schools have washing places attached to them.

* * * * * * *

Q. Are many of those schools schools in which industrial training is given?

A. We have a considerable number of our schools with industrial classes.

Q. How many?

A. The children in the industrial classes are 3,780.

Q. Are there a considerable number of schools in which there is no industrial training at all?

A. Yes; we are anxious to have industrial classes attached to all the schools.

Q. Do you understand that it is necessary for a ragged school to educate industrially every child in it in order to entitle it to a Government grant?

A. No; I do not understand that.

* * * * * * *

Q. Then, in selecting your teachers you look rather to a man's moral qualities than to the amount of actual school training which he has had?

A. Yes.

Q. The great object which you have with those children is to educate their character, to form in them habits of order and discipline and to incite in them a love of instruction, is it not?

A. Quite so.

Q. Would you consider that your schools were doing their work properly if they did not teach reading, writing, and arithmetic?

A. Certainly not.

So the examination proceeded, experts being called, examined, and cross-questioned in regard to the work with which they were familiar in Liverpool, Manchester, Bristol, Aberdeen, and Edinburgh, as well as in London. Papers of recommendation in regard to points raised in the oral examinations are also given; e. g., Ralf R. W. Lingen, in a paper on Aid to Ragged Schools, writes:

The industrial training given in ragged schools, which is a most important part of their system, tends to form habits of industry rather than to teach a trade.

A letter from C. Ferguson, of Edinburgh, recommends that the ragged school—

should be thoroughly industrial in its character, and, as far as possible, trades taught that the children could follow out and earn an honest livelihood by, in after life. Poor children may receive a good moral and commercial education, but this is not sufficient to qualify them for being able to support themselves afterwards. They may receive both, and on leaving school may have only three courses open to them—to beg, to steal, or to starve. The moral and industrial training are essential.

It is noteworthy that advanced ideas of instruction were tried out first on the children of the very poor, presumably because their parents would not object.

A minute of the Committee of Council of Education is to the effect that no aid should be given to the ragged schools unless they were industrial in character.

Schools Inquiry Commission, Report of the Commissioners, presented to Parliament, London, 1869.

4 vols: Vol. 1—661 pages + 192, Appendix.
Vol. 2—842 pages.
Vol. 3—872 pages.
Vol. 4—1,034 pages.

The letters patent of Queen Victoria, authorizing this survey, were issued June 30, 1864, to a commission of 12 persons, among them Lord Stanley, Sir Henry Northcote, and Baron Lyttelton.

They were authorized to inquire into the "State of popular education in England, and to consider and report what measures, if any, were required for the extension of sound and cheap elementary instruction to all classes of the people."

After an examination of the systems of New England, upper Canada, Scotland, France, Prussia, and Switzerland, the commissioners as well as those of England report on the kinds of education that are desirable for England. The facts regarding the secondary schools are stated; the girls' schools, with their defects, noted; and then general recommendations, especially for endowed schools, are made. The method of inquiry was by oral testimony; by questionnaires addressed to the authorities of the different schools; by the personal investigations of assistant commissioners; and by questionnaires addressed to persons of eminence in education.

The occasion for the survey is clearly indicated in the following words:

> Our chairman having communicated to us a letter from Dr. Lyon Playfair, stating that the Industrial Exhibition at Paris in 1867 furnished evidence of a decline in the superiority of certain branches of English manufacture over those of other nations, and that, in his opinion, this decline was partly due to a want of technical education in England, we proceeded to ascertain whether this opinion was held by other competent observers. Finding that the opinion was general, we thought it right to report at once to Your Majesty the communications we had received on the subject, as the prosecution of an inquiry into technical education itself appeared to be beyond our province.

The German *Volkschule, Realschule, Bürgerschule,* and *Gymnasia* are highly praised, while the English schools for the lower middle and working classes are condemned.

"We think classics good, but other things indispensable; and they want the classics either to make room beside themselves or to give

way altogether," is a statement which gives a key to the underlying thought in the minds of the commissioners. This opinion is further impressed by the following words of Assistant Commissioner Fearon:

> Among the mercantile classes in London, that is to say, the tradesmen, shopkeepers, and all who live by trade, I find a great desire for less instruction in classics and more thorough teaching in modern subjects. This feeling is growing and spreading so much among the mercantile and trading classes that I have been assured by several men of business that few things would please them better than a successful attack upon classical studies.

Although the surveyors say that it must not be supposed that this opinion is universal, they mention the fact that the parents compelled most of the grammar schools of Lancashire to abandon or greatly reduce classical teaching, and cite Mr. Bryce as authority for the statement.

First Report of the Royal Commissioners on Technical Instruction, presented to both Houses of Parliament by Command of Her Majesty, London, 1882, 62 pages.

This is a preliminary report and relates chiefly to the results of the study of industrial training in France.

The commissioners are not quite prepared to advocate for England a system of apprenticeship schools till they have had a longer period of trial abroad; they advise, however, the introduction of manual work into some of the ordinary elementary schools; they praise very highly the efforts of the French to instruct their entire working population. For adult instruction they recommend courses of free public lectures.

Second Report of the Royal Commissioners on Technical Education, presented to both Houses of Parliament by command of Her Majesty, London, 1884: 2 vols: vol. 1—557 pages; vol. 2—442 pages + 92.

Having investigated conditions in regard to technical instruction in France, Switzerland, Germany, Austria, Belgium, Holland, and Italy, as well as in the various parts of the United Kingdom, the commissioners express their astonishment at the extraordinary industrial progress of France, Germany, Belgium, and Switzerland. Much of this progress, it was declared, was due to advance in organic chemistry, notably in Germany; but new kinds of electrical machinery and new methods in mining, bridge building, and in the making of yarns, fabrics, and silk goods claim attention. While of the opinion that England still maintains her lead in the world of industry, the commissioners note with concern the growth of technical education abroad; the multiplication of polytechnic schools, technical schools for

workmen, secondary technical schools in Prussia; of weaving schools, schools for miners, continuation schools (in north Germany); special schools established by manufacturers and large employers of labor; and they conclude that if England is to continue to be the industrial leader, her managers, foremen, and workmen should combine theoretical instruction with their acknowledged practical skill.

They accordingly recommend a system of thoroughgoing technical education with a scientific basis and with abundant opportunity for practical application of theoretical knowledge.

Royal Commission on Secondary Education, Published, London, 1895, 9 vols., presented in Parliament by command of Her Majesty.

The commission was presided over by James Bryce, and in it with him were many other distinguished persons, among them the following: Sir John Tomlinson Hibbert, Edward Lyttleton, Sir Henry Enfield Roscoe, Richard Claverhouse Jebb, Henry Hobhouse, Michael Ernest Sadler, Hubert Llewellyn Smith, Lucy Caroline Cavendish, and Eleanor Mildred Sidgwick.

The commissioners concerned themselves especially with the subject of organization of secondary schools, not, for example, with an account of the instruction as given, or what subjects it should cover, or by what methods.

So the task was to examine into (*a*) the various kinds of secondary schools; (*b*) what relations they bear to one another; (*c*) what authorities manage them; (*d*) what funds they receive; (*e*) to what extent they meet the needs of the different classes of the community, noting especially the (1) defects in organization and (2) what further sources of income may be available for them.

Recommendations of the commission:

I. A central State authority over secondary education should be established, viz, a department with a minister responsible to Parliament.

II. Proper local authorities should be constituted, to avoid friction, duplication, etc.

III. Arrangements should be made for the better organizing of schools, scholarships, examinations, etc.

IV. Financial provision.

V. Preparation and registration of teachers.

In regard to industrial and technical education, the report of the commission calls attention to the fact that these topics were taken up by a royal commission [1] in 1884, and that this commission secured the levying of a rate (1 penny in the pound) for such education; the

[1] See preceding page.

small funds thus secured were insufficient to accomplish much, but the Local Taxation Act of 1890 provided further funds for the same purpose, so that something was accomplished for technical education.

> The classical languages are taught more extensively than ever, but less as if they were dead, and more as if they still lived, rich in all those humanities by virtue of which they have been the supreme instruments of the higher culture. And they do not now stand alone.

The report adds that modern languages and literatures and physical science are also included, and continues—

> The idea of technical instruction as the means for the training of citizens capable of producing or distributing wealth has taken hold, though in varying degrees of intelligence and intensity, both of our old borough councils and of our new county councils, and hence has come a concern for that kind of education which we might otherwise have looked for in vain. In a word, we have two excellent things, an enlarged education and a wider and more intelligent interest in it.

The attention given by the report to the topics of science, agriculture, continuation schools, and technical institutes indicates that those topics were clearly in the minds of the commissioners in their recommendations for a reorganization of the entire school system for the sake of efficiency.

Board of Agriculture and Fisheries and Board of Education. Report of the Royal Education Conference, Henry Hobhouse, chairman, County Staffs of Instructors in Agricultural Subjects, London, 1910 (9 pages).

In answer to a question proposed by Sir Robert Morant, July 29, 1910—

> Should each county have its own staff of instructors in agriculture, horticulture, etc., or could a single staff be made available for groups of contiguous counties?

The fact is that the great majority of the counties have their own staffs; but in the cases where the counties have none, they should associate with other counties having staffs.

The minimum staff should consist of—

(*a*) An agricultural organizer and adviser who should supervise the work of the county.

(*b*) A horticultural instructor who should give courses of instruction at approved centers.

(*c*) In most counties, a dairying instructor.

This minimum staff should be supplemented by—

(*a*) Investigators and analysts.

(*b*) Farriers, poultry experts, etc.

(*c*) Foresters.

(*d*) Organizers in the economics of agriculture, e. g., cooperation and credit banks. These inspectors and experts should have a most thorough practical as well as theoretical training.

SURVEYS BY MICHAEL E. SADLER.

Of special importance in any consideration of the survey movement are the surveys by Prof. Michael E. Sadler. The following are typical examples of what in some respects may be considered the best educational survey work ever done:

Survey of the City of Sheffield, by Michael E. Sadler, published, London, 1903 (45 pages). Secondary and Higher Education.

(*a*) Aims to be kept in view.

(*b*) Strong and weak points in present system.

(*c*) Recommendations: English, classics, mathematics, science, manual training, school games, preparation for technical school at 16 years.

(*d*) Cost.

In the keen competition of modern days, industry and commerce make ever-growing demands on the scientific ability, the ready knowledge, the resourcefulness, and the foresight of men of business.

The citizens of Sheffield can provide for this need by a new system of schools, i. e., by completing, unifying, and strengthening the present system. Science has revolutionized modern life and must have its proper recognition in the schools. Besides, the teachers must have adequate training. Their classes must not be too large, and they must not have too much hack-work and routine.

The chief difficulty, according to the survey, will be found in making out the right course of study. In spite of its initial expense a liberal secondary education should be crowned with technical and professional training. Such a system is as necessary to a progressive city as a first-rate water supply, a good tramway system, electric lighting and power, municipal buildings, and the like. An effort must be made to secure for all the boys and girls in Sheffield the best possible training for their powers; it is also necessary to keep steadily in mind the industrial and commercial life of the city, without overlooking the needs of those who are to enter the professional callings.

Elementary school pupils who are to receive a secondary education should be transferred not later than the age of 12 to the secondary school, in the opinion of the surveyor, and there the course should vary in length and in type according to the occupation which the child expects to follow. The minimum course should extend from 12 to 16; and for the professions and the higher posts in business, to 17, 18, or 19. Power of expression should be cultivated. But the children should not attempt to take too many subjects at the same time. Smattering is mischievous. Besides, the aptitudes of children vary as greatly as the occupations. What we need is a clearing up of aims.

As for higher institutions, says the report, Sheffield is better equipped, but an effort should be made to add to the resources of these, and a wider use should be made of such institutions as the technical school of art, the school of cookery, the evening classes, the museums, art galleries, and libraries. The great "importance of the technical school consists in its close bearing on the primary industries of Sheffield, which are":

(*a*) Metallurgical—(1) Steel manufacture, (2) iron, (3) other metals, e. g., silver.

(*b*) Engineering—(1) Mechanical, (2) electrical, (3) civil, (4) mining.

(*c*) Cutlery, including silver plate.

Survey of the City of Liverpool, M. E. Sadler, 1904, London (230 pages). Secondary Education and Training of Teachers.

Considers the backward condition of the schools and the causes of it—lack of funds, lack of attention; better training for teachers; the need for better secondary schools is great; when obtained, they could supply students for the municipal schools of art; for the school of commerce; for the training school of cookery, etc.; for the evening school, continuation classes, etc.; improvement in secondary education could be brought about by (*a*) better corps of teachers, (*b*) better courses, and (*c*) better supervision.

In this survey, Dr. Sadler states what the present educational condition is, what its defects are, and where and how improvement may be brought about, with an eye to the city's needs. These needs are extraordinary, and the defects in education are so great that vigorous effort must be made to provide proper training for the youth who must carry on the business of one of the great commercial cities of the world. Especial attention is given to the Municipal School of Art; the school of commerce; the schools of domestic science; the central technical school, and the evening continuation schools and technical classes; but he insists that the business future of the city depends on raising the intellectual standard of the secondary schools.

The course of study in the secondary schools should be carefully adapted to the special needs of Liverpool. The humanities should be given an important place, but English should be efficiently taught; mathematics, general science, geography, history, French, Latin, manual instruction, and drawing should receive very careful attention; and every boy should go through a carefully graded course of physical exercise.

Survey of County Borough of Huddersfield, by Michael E. Sadler. Published, London, 1904 (127 pages).

Secondary and technical education are the general topics. "Prudent liberality" is needed, as well as "practical wisdom." A first-

rate public high school for girls should be provided. The technical college ought to do two things (*a*) further staple trade of the town, (*b*) train teachers. A system of scholarships should be established. Teachers should be given a chance for higher culture. It is necessary to reorganize the evening continuation schools and bring them into closer connection with the local industries; to establish an evening school of domestic science; to establish an evening school of commerce; to reduce size of the classes; to issue a "Directory," i. e., a yearly report, to keep the public informed.

Survey by Michael E. Sadler, County Borough of Birkenhead. Published, London, 1904 (131 pages).

This survey treats chiefly of secondary education. It points out that the deficiencies of the secondary schools are due to lack of funds. The way to improve the *quality* is to break down the barrier between elementary and secondary education by raising secondary schools to "a higher plane of intellectual efficiency"; for this there is need of *competent teachers*. Besides, provision is needed for courses of connected subjects for evening continuation classes in (*a*) liberal education, (*b*) manual training, (*c*) home occupations, (*d*) commercial instruction, (*e*) technical and industrial classes.

Survey of City and County of Newcastle-upon-Tyne, by Michael E. Sadler. Published at Newcastle-upon-Tyne, 1905 (89 pages), Secondary and Higher Education.

Yet is there not a danger lest, as has happened more than once before in our educational history, we should attach too little importance to the humanities in education and too much importance to what is material and apparently capable of yielding direct profit?

I. Sadler finds that there are eight systems of secondary schools and that they are making some progress.

II. That there are in Newcastle three types of secondary schools, namely, for those—

(*a*) leaving school when 18 or 19 years old;

(*b*) leaving school when 16 or 17 years old;

(*c*) leaving school when 15 years old.

III. Too little attention has been paid in England to pupils of the third class (*c*). (1) Two schools for such ought to be established in Newcastle. (2) The course of study for such should be general for two years (12–14), but vocational during last year of attendance. (3) The classes should not contain more than 30 pupils each. (4). More funds ought to be provided. (5) More pupil-teacher centers should be established. (6) Evening classes should be graded. (7) An industrial museum should be established. (8) A teachers'

council should be formed to help correlate elementary and secondary schools. (9) Annual reports should be published.

Survey of Administrative County of Essex, by Michael E. Sadler. Published at Chelmsford, 1906, LIV+418 pages.

Secondary and higher education are the subjects of the investigation.

I. Fine work is being done by the education committee of the county council: (*a*) Establishing vigorous schools; (*b*) valuable experiments in coeducation; (*c*) scientific study of agriculture, (1) study of nature in elementary schools, (2) and in rural schools, (3) horticultural courses for teachers at the county garden; (*d*) county scholarship system, on the whole, good.

II. As for rural schools, (1) concentration in centers should be sought rather than the building of new schools; (2) means for transportation of pupils for daily attendance suggested, but (3) better teachers are needed; and (4) *small classes*.

Collectivism rather than extreme individualism is needed, if England is to maintain her national importance; both individual and public needs may be furthered by county organizations.

Hitherto English secondary schools have been isolated in our education. This must no longer be so. "Trained thinking power is needed throughout the community." The grammar schools, hitherto standing alone, must form part of the secondary school system, and help our youth adapt themselves to our new industrial, commercial, administrative needs.

BELGIAN SURVEYS.

État de l'Instruction moyenne en Belgique, 1842–1848. Rapport présenté aux Chambres législatives, le 20 juin 1849, par M. le Ministre de l'Intérieur, Bruxelles, 1849, E. M. Devroye et Comp^e^, pp. XLIII+591.

Part I. Legislation and organization: Secondary education in Belgium was founded and supported by the communes and the provinces, and has, accordingly, been administered by the communes and the provinces, the Central Government having only the right of supervision, though in the case of some schools to which the General Government has granted subsidies the State exercises a certain amount of control.

Part II gives the cost of instruction in the various secondary schools, including industrial schools, but not for trade schools and schools for apprentices; the pensions for retired instructors are included also.

In the recapitulation it is explained that progress began with the decentralization of school control at the fall of the old government in 1830. Emulation has increased; supervision has become of more importance; and agricultural schools have been established. A list of 14 agricultural schools is appended.

Regarding vocational training the following statement by Mr. Trasenster, inspector of studies at the School of Arts, Manufactures, and Mines, at Liege, is presented:

What is the aim of instruction? Evidently the aim of instruction, and of education, is to prepare the child and the young man for the duties and exigencies of the position which he is to occupy in the world. The school should be the apprenticeship for practical life. The pupil, on leaving school, should take his place in the social scale with the ideas and sentiments which are proper for the place which he is called to occupy. Such, it seems to me, is the most general idea of the aim of instruction.

With regard to elementary instruction there is no difference of opinion; it should give the first notions which are essential for the simple relations of social life.

But as soon as we take up the subject of secondary education a great divergence in opinion at once arises. According to many minds secondary education is merely a preparation for university instruction. Its only care should be to make lawyers, scholars, physicians; and so the study of antiquity is, above all, important; it is almost the only study which is the source of anxiety; it furnishes the only means of making one's "humanities" exactly as in the time when Latin was the sole language of science, when the modern tongues were still in their infancy; and, finally, when instruction had and could have no aim save that of forming theologians, lawyers, and physicians.

But this organization, maintained to the exclusion of every other, in our age would constitute for three-fourths of our vocations a deplorable anachronism. Indeed, experience proves that the number of young people who enter the universities on leaving the high schools is a very small minority. Thus the average of the number of university graduates, who before 1835 numbered 170, has been reduced in our day to 85. As there are nearly 70 high schools which give training in the ancient languages, there are less than two pupils per high school who graduate from the universities. But more than that, the majority of pupils give up their studies after three years of high school.

* * * * * * *

A similar state of affairs exists in other countries, and notably in France. This is a very noticeable fact in Belgium and has caused severe criticism of the organization of the high schools, and justly so; nevertheless, I believe that it shows a social need of which we have hitherto taken too little account. For many of the children of the lower middle class, that class so numerous in our country and of such remarkable energy, artisans, little-shop keepers and the like, primary instruction is insufficient, classical instruction is too extended, too burdensome, too dangerous even. Besides, these children must begin an apprenticeship toward the age of 14 or 15 years, and far from opposing the opinion of parents in this matter, one should encourage it as praiseworthy and respectable.

But what happens if the father, deceived by the official favor by which the classic studies are exclusively surrounded, sends his son to high school? After three years he will probably withdraw him and have him apply himself to a vocation; and all the young man has learned is a little French, the Latin and Greek declensions, a little geography and ancient history, some purely theoretical arithmetic, incapable with

all this baggage of being of any use in an office, incapable of drawing a line in geometry, and knowing no tongue which would permit him to cross the boundaries of his own country.

* * * * * * *

Everyone realizes that these shortcomings in our education exist; everywhere efforts are made to overcome them, for example, by creating industrial and commercial sections in high schools, and also, in part, by higher elementary schools (prevocational). But because of the failure to have a clear consciousness of the end to be attained, no systematic rational plan has been followed in working out the details of school organization.

And first of all, in view of the facts explained above, we see the necessity of dividing secondary education into two well-marked divisions, the lower of which would meet the needs of the more numerous part of our middle class, and at the same time it would serve the children of those better off with a preparation for the higher division. In my thought, the lower division would have in view the same object as the higher elementary schools; but it would differ in that the instruction would be more complete than that of the actual higher elementary schools which do not lead to any instruction of a higher sort. On the contrary, pupils who because of their talent or their means should be permitted to continue their studies would find continuity of instruction in the higher division of the secondary schools. For this purpose it would be necessary to incorporate the higher elementary schools into the secondary, vocational school system of which it would form the first division.

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The higher division of secondary schools would be intended for the completion of the general and vocational training of young people who are to enter commerce, industry, etc.

The instruction in this division would have as its aim not simply to give the technical instruction necessary for certain callings, but also the general knowledge which every man should possess who is called to hold an honorable position in society and in the elective councils of the country. Here is a question of the first importance: What is the instruction which is most suitable to lead to this double end of endowing the country with men skilled in commerce, industry, farming, etc., and at the same time make sure that they are honorable men and good citizens?

Mr. Trasenter offers the following as a curriculum:

Languages.—The study of languages is of first importance, not in the way of science, but as an art. One's skill in language denotes one's psychologic development. Besides, other languages are necessary in gaining a fair mastery of one's mother tongue. But what languages should be chosen? If a student is to go on to the university in order to prepare himself for law or medicine, the classic languages are best. But if one is to enter business or industry, two modern languages should be chosen, English and German, though not to be commenced together; German, for various reasons, should be begun in the lower division of the secondary school, and English in the higher division.

Arts.—Certain arts are also indispensable, and especially the art of writing legibly, drawing, singing, at least in chorus, and gymnastics.

Religion.—Religious instruction is needed, but it should be taught better than it is at present.

Geography and *history* are also necessary, but they should be graded properly between the lower and higher division of the secondary school system. History is especially important, and especially the history of Belgium with its relation to general history is not to be overlooked.

Mathematics.—There is no need of proving the necessity of studying mathematics, necessary as it is in logic as well as in all the practical affairs of life. However, the present method of teaching it should be radically changed. The drill in its practical applications should be very thorough in the lower division of the secondary school, and its more difficult theoretical parts reserved for the higher division.

Bookkeeping should be thoroughly taught in the lower division of the secondary school, for, no matter what one's subsequent career, bookkeeping is needed.

Commercial section.—The commercial section of the high school would include in special courses the union of the various kinds of special knowledge which are of greatest practical value, such as the various commercial operations, the elements of commercial legislation, the statistics of the country, political economy, and the elements of technology appropriate to the locality. This would usefully take the place of the institution which they wished to create at Antwerp under the name of a university of commerce.

Industrial section.—In the industrial section it is impossible to specialize in the studies in such a way as to train expert mechanics. That is the aim of the special industrial schools. But it will be of great importance to the industries to give the young people the necessary preliminary knowledge, so that they will understand the work when they enter it.

Now all the industries employ, simultaneously or separately, mechanical agents and chemical agents, and products of the soil as raw materials. It is thus necessary to give some elementary knowledge of the dynamic sciences, and that supposes an understanding of elementary mathematics and some knowledge of physics and chemistry as well, the use of chemical instruments and the application of this science to local industries. These courses would be followed for the other two sections, but the pupils of the industrial section would be trained to make more numerous applications.

Descriptive geometry and design should form a part of the instruction of this section. I add political economy and the elements of technology, as for the pupils of the commercial section. "Such is the plan for vocational education such as I conceive to be useful, and at the same time possible, in Belgium." It would include four distinct grades of instruction: (1) Elementary schools (in all communes); (2) lower secondary schools (in all important centers); (3) the higher secondary schools (one or two, at the most, in a province); (4) special schools (military, mines, bridges, roads, etc.).

An examination should be held for each of the three higher grades and a certificate given, which, in each case, would admit to the next higher grade, or a diploma which might admit to a position in the post office, or the railroad, for example. But here comes a question which has been much discussed, and which, in Belgium, has received various answers: Ought the secondary schools (i. e., the vocational) to be completely separated from the cultural high schools?

What has been said in regard to purposes and studies proves that the two kinds of schools should be kept quite apart. This is done elsewhere, notably in Prussia, where the Gymnasia and the higher Bürgerschule are kept quite distinct.

On the basis of this course, the report gives a severely critical examination of the schools of (1) Antwerp, (2) Bruges, (3) Brussels, (4) Gand, (5) Liege, (6) Mons, (7) Tournai, (8) Verviers.

It should be noted in this connection that in March, 1849, there was established at Tirlemont, by royal authority, an agricultural school annexed to the high school, but with its administration entirely separate. Its course of study included French and Flemish

languages, elementary mathematics and geography, geometry, surveying, leveling, stereometry, linear design, mechanics, physics, meteorology, mineralogy, geology, botany, general chemistry, organic chemistry, agricultural technology, horticulture, agricultural zoology, elements of the veterinary art and hygiene, rural architecture, rural economy, agriculture.

A very elaborate course was prescribed for the school of horticulture.

Agricultural schools were also established at Oudenbourg, Chimay, Thourout, etc., with very thorough courses of study.

It is worthy of comment that the above progressive plan of instruction, with its clear-cut conceptions, was presented in Belgium in 1848.

Écoles d'Agriculture, Rapport à M. le Ministre de L'Intérieur sur la Situation de ces Écoles pendant l'année scolaire 1850–1851, Bruxelles, 1851 (135 pages).

The results of painstaking personal examination of the agricultural schools at Vilvorde, Tirlemont, Chimay, Leuze, Verviers D'Ostin, La Trapperie, Rollè, Berg-op-Zoom, Gendbuegge, and d'Ostacker are given; the courses of study, the methods of instruction, the attainments of the students, their discipline and physical welfare are stated and suggestions for improvement are made. In general, the courses contain theoretical as well as practical studies, and much work in the gardens and on the farms is required. The studies and practical work last, as a rule, from 8 a. m. to 5 p. m.

The subjects of general instruction are: Penmanship, French (sometimes Flemish also), arithmetic, accounting, drawing; the school at Tirlemont adds courses in physics, chemistry, anatomy, physiology, mineralogy, geology, geometry, with special regard to their application; the surveyor adds that the history of Belgium should also be given. He praises the work in horticulture and gardening, notes with satisfaction the attention given to fruits and vegetables, and remarks that the instruction at Vilvorde has consisted too exclusively of memory training. The school for the manufacture of agricultural tools meets with his approval; he praises the conduct of the students. The poor preparation of some students makes it impossible for some of the pupils to progress satisfactorily in the work of the schools. He mentions the fact that at Leuze there are some young men who work during the summer on their parents' farms, and attend the school only during the winter months. In that school the pupils are divided into two classes, the first taking theoretical work as well as practical; the second, practical work only. This he finds to be a good arrangement.

Rapport sur l'Enseignement Agricole présenté aux Chambres Législatives, 1860, Bruxelles, 1863 (112 pages).

A work similar to the preceding, but having less detail.

Rapport sur la Situation de l'Enseignement Industriel et Professionel en Belgique, Présenté aux Chambres Législatives, le 7 Mai, 1886, par le Ministre de l'Agriculture, de l'Industrie et des Travaux Publics, Bruxelles, 1886 (212 pages).

At that date Belgium had (*a*) 35 industrial and trade schools, (*b*) 45 apprenticeship schools, (*c*) one school of mines (at Mons), (*d*) one higher institute of commerce at Antwerp, and also certain public courses.

(*a*) The industrial schools are much appreciated by the working classes, as is shown by their rapid growth since 1879; there is doubt in regard to the trade schools; it costs a great deal to equip them. Experience alone can show their value.

(*b*) The apprenticeship schools owe their origin to the fact that machines at the end of the eighteenth century threw many people out of work. In 1817, at Gand, they were first established. They have produced skilled workmen, raised wages, and brought in new industries.

(*c*) The school of mines at Mons dates from 1837. It has been a great success; its graduates are employed not alone in the industries of Belgium, but abroad as well.

(*d*) The Higher Institute of Commerce at Antwerp was founded in 1852. A wide range of theoretical instruction is given, and its commercial bureau gives practical instruction in many branches of commerce.

(*e*) Courses in photography, at Brussels, were organized in 1870. Their object was to teach the common applications of photography to industry, science, and art. Practical as well as theoretical lessons are given.

(*f*) In addition, public courses (since 1826) at Brussels have been given; e. g., in (1) history of Belgium, (2) literature, (3) physics, (4) chemistry, (5) administration, (6) hygiene, (7) astronomy, (8) political economy, (9) botany.

A supplement gives further detailed information especially in regard to industrial schools.

Rapport sur la Situation de l'Enseignement Technique en Belgique par M. le Ministre de l'Industrie et du Travail, 1897–1901, 2 vols: Vol. I—818 pages; Vol. II—469 pages.

This is a very elaborate report giving statistics and practical details in regard to the various technical schools of Belgium; stating the courses for girls as well as for boys, and containing practical sugges-

tions for improvement. In this we see the fruit of the efforts of the earlier advocates of technical training. The number of technical schools subsidized by the Government was 579 in 1901; of these 348 were vocational, housekeeping, schools for girls, and 231 were vocational, industrial, and apprenticeship schools for boys. It is impossible in a brief notice to do much more than refer to the work itself, a storehouse of information on a modern system of industrial education.

SCOTCH SURVEYS.

Second Report of Her Majesty's Commissioners, Appointed to Inquire into Schools in Scotland, Presented to Both Houses of Parliament by Command of Her Majesty, Edinburgh, 1867, circa 1,000 pages.

This commission was presided over by the Duke of Argyle.

It describes the condition of education in the lowland parishes, in the towns, in the Hebrides and western highlands; it gives information in regard to the privy council system and the revised code, attendance at school, school building, teaching and teachers, and the cost of education.

The condition of education is found to be very poor; a more efficient system of inspection is recommended, and grants are proposed; and an extension of the Factory Acts is urged.

Third Report of Her Majesty's Commissioners Appointed to Inquire into the Schools in Scotland, Edinburgh, 1868, 2 parts: Part 1—271 pages; part 2—366 pages.

This survey appears to be a continuation of the report of 1867, and supplies information in regard to burgh and middle-class schools; but this part contains a discussion of industrial (i. e., ragged) schools in which the testimony indicates that these schools are accomplishing much for the boys, so that "honest employment could be obtained for four times as many boys as could be furnished."

IRISH SURVEYS.

Royal Commission of Inquiry into Primary Education (Ireland), Report of Commissioners, Dublin, 1870, 8 vols.: Vol. 1—972 pages; vol. 2—510 pages; vol. 3—776 pages; vols. 4 and 5—825 pages; vol. 6—306 pages; vol. 7—556 pages; vol. 8—251 pages.

The commission was presided over by the Earl of Powis. This survey contains a historical sketch of national education; gives the provisions for primary education, number of teachers, attendance of children, proficiency of children, and account of school buildings.

In regard to agricultural schools it says:

> We intend that our normal department, which we hope will be completed in January next, shall consist of two departments—one for elementary, the other for scientific

instruction; that the latter shall teach in particular those branches of science which have a practical application to husbandry and handicraft.

We also purpose having a school for industry in the immediate neighborhood of Dublin, with workrooms, and a farm of 40 to 50 acres annexed to it; and that those who attend it shall be practiced at stated times in different descriptions of manual work and in the general business of agriculture.

The report adds that in 1848 there was but one model farm, but in the following year they began to extend their agricultural system, three new farms being placed on their list during 1849. In 1856 there were 20 such farms.

One need not be astonished at the remarkable success of Sir Horace Plunkett in the twentieth century, when such a good start had been made toward the middle of the nineteenth century.

Vice Regal Committee of Inquiry into Primary Education in Ireland London, 1914, Second Report (571 pages).

Vice Regal Committee of Inquiry into Primary Education in Ireland, Final Report presented to parliament, London, 1914 (52 pages).

Duties of inspectors, rating, promotion, and salaries of teachers are topics that receive special treatment; attention is also given to studies and courses; and, under this heading, the fact appears that boys from the national schools are not well prepared for the courses of the technical institutes, of which there are a dozen or more in Ireland.

The recommendations of the board of national education are stated; these include a system of kindergarten schools, the idea of which is essential for all grades and for all teachers; hand and eye training; woodwork, sloyd, drawing; elementary science, with both object lessons and experimental courses; agricultural education, which should not be bookish, but should be built up on experimental science, viz, physics, chemistry, and biology; cookery, laundry work, and domestic science; needlework; singing, and physical training.

GERMAN AND AUSTRIAN SURVEYS.[1]

Verhandlungen der Gymnasial-Enquête Commission, published by the Austrian Royal Minister of Education in Vienna, 1871 (344 pages).

Fifty of the leading directors of gymnasiums, rural school inspectors, and professors of education representative of the various dominions and nationalities of the Empire, were summoned by the minister of education in the autumn of 1870, and the following problems were presented to them:

1. How far do the preparatory classes for the gymnasia meet the needs for which they were established?

[1] While educators of other nations have repeatedly made reports on German and Austrian schools, there are few reports made by Germans on German schools that are of the same type as the investigations and surveys recorded for other countries in this bulletin. Such reports as the following are, however, more than *studies;* they are *official surveys*, and possibly of the best type.

2. Under what conditions would the introduction of freehand drawing into the curriculum of the Untergymnasium be desirable?
3. To what degree should natural science be taught in the lower classes?
4. In what way should general nature study be made a part of the course for the upper classes, and how should it be regarded in the final examination?
5. In what way can the modern languages form a part of the required course of study without overwork on the part of the pupils?
6. What can be done to bring religious instruction in the upper classes into harmony with the present laws in various provinces of the Empire?
7. How may the final examination be made to correspond to its original purpose as a means of obtaining data for a formal certificate of the total cultural training of the graduate, without becoming a mere form, and how may the excessive duties of rural school inspectors be met?
8. How may the relationship of the lower and upper classes, after the carrying out of the indicated reforms, be established and manifested?

Definite, practical problems of reform are thus clearly stated to educational experts, and definite rational solutions are required, having in view, of course, school conditions as reported on the spot by the school authorities present in person.

It is worth our while to see how the commission handled these problems, for in them are involved the topics of modern reforms in education, the breaking away from the classic bonds, and the introduction of science and modern languages.

The commission was divided into three sections—the first to deal with questions 1, 7, and 8; the second section to discuss and report on questions 2, 5, and 6; and the third section to treat similarly questions 3 and 4.

In its session on the 30th of September, 1870, a hot discussion of question No. 1, brought out the statement from a Galician representative that the *Volksschule* should not be regarded as preparatory for the *Gymnasia*, that these schools had their own aim, to train the children of the people for their life work, and they ought not be hampered by their connection with the classical schools (the gymnasia). His view was opposed, and yet a modification of it was adopted by the assembly, namely, that preparatory classes connected with the gymnasia should be established where need for them should appear.

Perfect freedom was granted all members to express their views. Full advantage was taken of this freedom in the debate concerning the introduction of the modern languages into the curriculum of the gymnasium—one of the keenest, most spirited debates on record. The section committee admitted the value of the modern languages, but urged that they should be *elective* for especially talented pupils, but not required of any.

The more radical members contended that, while the classic training was still valuable, modern developments in the means of communication, etc., had made a knowledge of the modern languages

indispensable. This need not entail an overburdening of the students, they declared, for the strain upon the students was caused by too many subjects. They proposed more thorough training and few subjects. Group courses might be introduced, they said.

The assembly voted that the modern languages should be, in general, elective, though, in special cases, they might be required. So the thin edge of the modern program was forced into the old uniform required system.

The question of the introduction of drawing into the curriculum of the gymnasium was next taken up. After a lively discussion of the relative merits of freehand versus mechanical drawing, the meeting voted to introduce freehand drawing as a required subject for a maximum of three or a minimum of two hours per week.

The subject of religious instruction in the gymnasium was discussed with the greatest earnestness. The topic was approached from various angles. Should religion be taught in the gymnasium at all? Would it not be better to confine it to the home? Since at 14, the youth, according to law, is entitled to choose for himself in religion, ought not instruction in that to be confined to the classes in which the pupils are under 14 years of age? But in that case, will there not be a failure on the part of the school to do its duty in training in character which the State requires of all schools? Ought, then, the training in religion to be anything more than training in Christian morals? In that case, is not one hour of instruction sufficient in the upper classes? But is not that equivalent to putting a slur upon religion, especially since the subject of religion is not noted in the final examination? If religion is to be taught at all, is it not necessary to teach it, in every instance, in a sectarian way, i. e., Catholics, Protestants, and Jews, each in their own way according to their own beliefs?

The commission voted that religious instruction should be given in the upper, as well as in the lower classes, of the gymnasium; that in the upper classes one hour per week should be given to such instruction.

The commission also voted to extend the study of history up to the most recent events, and to extend considerably the scope of the geography instruction.

Natural sciences afforded the sharpest discussion. There was a real tug of war between the strict classicists and the realists. Both groups agreed that the classic languages were the basis of the gymnasium, and that general culture (*Algemeine Bildung*) was the aim toward which all study should be directed. The classicists admitted that natural science was in itself a most important subject, but they contended that the gymnasium was not just the place for it; that experience showed that students who had a thorough classic training could, when later it became necessary, take up the sciences and their

applications with greater ease and ability than those students who prematurely undertook to master those topics. Their opponents pointed to the necessity for an educated man to know the developments in physical science, and to have some training in laboratory methods; they pointed to the success with which science was being taught in foreign secondary schools, and that such study was the more necessary in Austria as there were, relatively, so few industrial schools where science would naturally form part of the program.

A Galician rural-school inspector (Mr. Czerkawski), who had evidently made a special study of pedagogy, quoted Herbart and Pestalozzi to prove that a topic should not be introduced into the curriculum merely because it was useful in itself; it must be of greatest service in the attainment of the object for which the gymnasia were established. They must bear in mind, he said, that there were three, not two, stages of growth and development to be provided for, namely, first, childhood; second, period of puberty; and, third, youth. Hofrath Ficker, director of the imperial bureau of statistics, declared that the organization of the schools was not to be like a metal garb which should remain the same forever, but it should form part of the life of the institution and grow and change with it.

Another speaker declared that some time the impregnable classic structure of the gymnasium might tumble down; for ideas of what culture is, change from age to age.

In the end after the longest and hardest debate of all, the realists won and the commission voted to extend the time for scientific study in all classes of the gymnasium.

In this great struggle one reads between the lines that the conservative force was that of the gymnasial faculties and that progress was largely due to governmental encouragement.

A FRENCH SURVEY.

Enquête sur l'Enseignement Secondaire, Rapport Général (Chambres des Députés), Paris, 1899 (6 vols.). With a general introduction by M. Ribot, chairman of the commission.

The survey discusses the subjects of administration of secondary schools (lycées and collèges), physical education, hygiene, training of teachers, courses of study, modern languages, drawing, final examinations, supervision, national appropriations.

"Less uniformity, less bureaucracy, a little liberty," is the general demand that is emphasized in this report, which is very critical of prevailing conditions. There is no life in the secondary schools because they lack real autonomy; the system suffers from overcentralized administration. The head masters have responsibility, but no initiative; the junior masters (tutors répétiteurs) are not

respected; Latin has received too much attention. France has no lack of learned men, but it does lack engineers and men of affairs. It is outclassed by Germany in this respect; not that the classical course should be suppressed, but it should not be the exclusive kind of education; it should not prevent young people who have talent for practical affairs from receiving suitable instruction. Attendance at the lycées and the collèges does not increase. The increase in cost of attending them has had something to do with this. Religious causes have also been at work. The State should respect the right of the individual to choose the instruction that he wishes for his children, but it must use all legitimate means of influence to get such instruction to conform to certain standards.

The course of study suffers from uniformity. The modern world has an entirely different social and economic basis from that of the ancient world, and yet the dead languages continue to be the substance of our education. In this there is injury as well as danger, individual and national. Science has become of vast importance, and history and modern languages demand a place. Of course, we can not dispense with Latin, for it is the mother of French; and Roman life has contributed much to modern French life; and yet it is necessary to prepare for modern conditions.

It is not necessary to overburden the pupils with too many new topics at the same time; a more rational method of teaching must be adopted; a better arrangement of subjects, according to the age and attainment of the pupils, and a proper utilization of their time. Besides, there are too many changes of teachers. The same teacher continued two or three years, with one set of pupils, can accomplish much more than is at present the case.

Statistics prove that most of our graduates are headed for governmental positions. This is a grave danger. It is necessary to avoid it by preparing our young people for the other necessary occupations.

A SURVEY OF NEW SOUTH WALES.

Commission on Primary, Secondary, Technical, and Other Branches of Education, Legislative Assembly, New South Wales, Sydney, 1904 (378 pages).

This survey treats mainly of secondary education.

I. Great public importance of secondary education; not adequately recognized in New South Wales as it is, for example, in Europe and in America.

II. It is necessary to consider first the relation of secondary education to the rest of the educational system, and especially to primary education; and in this regard we must remember that in New South Wales, as in England, there is no educational unity.

Primary education, very poor: (*a*) No kindergartens, (*b*) poor preparation of teachers, (*c*) unsatisfactory curriculum, (*d*) bad system of building schools, (*e*) poor hygienic arrangements.

A good system of secondary education is needed to furnish (*a*) teachers for primary instruction and (*b*) leaders in the industrial and commercial progress of New South Wales—i. e., in competition especially with graduates of American secondary schools. (1) The first thing needed is coordination with primary and with higher schools. (2) A guiding program is also requisite. (3) Trained teachers much needed, as well as (4) scientific equipment.

The surveyors conclude that, in general, the trend away from the mere classical training and toward scientific education is a thing to be encouraged, but first of all it is necessary to understand the defects of the New South Wales system and then set up an ideal and try to follow it.

A SWEDISH SURVEY.

Underdånigt Utlåtande och Förslag till Den Lägre Tekniska Undervisningens Ornande, 4 Oktober, 1907, Länstidningens Tryckeri, Örebro. 3 vols; vol. 1—447 pages; vol. 2—521 pages; vol. 3—424 pages.

Report and Recommendations of the Committee Appointed by the King to Investigate the Status of Technical Instruction in Sweden.

With the reforms of 1870, the lower technical instruction in Sweden received in the main its present form. Unlike Sweden, foreign countries have devoted much time and effort to the development of the lower technical instruction during the past few decades. The State aid for lower technical instruction in Baden amounts to 385 crowns per 1,000 inhabitants, in Austria 283 crowns, in Prussia 252 crowns, in the Netherlands 206 crowns, in Denmark 200 crowns, in Finland 149 crowns, in Norway 143 crowns, and in Sweden only 88 crowns per 1,000 inhabitants each year. The vocational instruction in the city of Munich, with a population of 560,000, costs each year about the same as the entire lower technical instruction in Sweden.

In formulating the plan for the necessary changes and rearrangement of the lower technical instruction, the committee considered it important that the instruction should be arranged in such a way that there would be possibilities of development, and that the majority of those who are engaged in the trades would be given an opportunity to receive a technical education.

According to the recommendations of the committee, the lower technical instruction in Sweden should comprise the following:

Apprentice schools; trade schools; technical vocational schools; the Technical School in Stockholm (an institution giving instruction in handwork); the State Normal School for Vocational Instruction; the education board for the technical schools in the Kingdom.

In order that the representatives of the trades and the industries might exert a greater influence on the development of the lower technical schools, and therewith on the entire technical instruction, the committee urged that the lower technical institutions should continue to be under the management and care of local boards. The committee also recommended that the industries should have a stronger representation in these local boards than they have had hitherto.

A NEW ZEALAND SURVEY.

Report of the Commission on Education in New Zealand, to the Governor of New Zealand, Wellington, 1912 (744 pages).

This is an inquiry into the following topics: Cost of State education in primary, manual, technical, and secondary schools in its relation to efficiency; administration of central department, powers and rights of education boards, etc.; cost of manual and technical instruction; local responsibility to provide a part of it; consolidation of local governing boards; overlapping and duplication; finance of education boards; agricultural instruction and rural courses; vocational education; scholarships; general needs for progress, e. g., in administration, and coordination.

The commission recommends a revision of the entire school system, primary, secondary, and technical, which should insure a maximum of local interest and, at the same time, continuity of general administration.

Among the weaknesses of the school system which should be overcome are: Lack of satisfactory administration and of proper aims and methods; lack of fairness in promotion of teachers; lack of suitable courses of study, of playgrounds, of rural training, and of proper coordination between primary, secondary, and higher education.

The commission advises the appointment of a council to be composed of the minister of education, the director of education, the supervisor of technical education, two representatives of the producing industries of the Dominion, and 10 others, one of whom should be chosen by the staff of inspectors, one by each of the five education boards, two by the certificated teachers of primary schools, one by the certificated teachers of secondary schools, and one by the senate of the University of New Zealand.

The commission further says that the number of teachers should be increased; better salaries offered to secure such increase; the consequent lowering of number of pupils per teacher; efficient teachers insured fairer opportunities of promotion; compulsory con-

tinuation classes in technical schools; overlapping should be entirely avoided; agricultural education should be greatly strengthened; continuation classes in agriculture and dairy work in connection with district high schools should be encouraged; and the prospect of establishing an agricultural high school should be considered, and two agriculutral colleges ought to be established; the course of study should be enriched and the importance of oral and mental work emphasized; history, hitherto neglected, should receive proper attention, drawing should be simplified; the quality of supervising improved; physical instruction should have special attention; moral instruction should be given; nature study should be fostered; and boards of education should insist on medical and dental attention where needed.

An opportunity should be given teachers to become original members of the superannuation fund. Parents who fail to send children to school should be liable to a fine; children should be kept from street trades, which interfere with their education and endanger their morals; and children should be prevented from loitering about the streets at night, and especially in the neighborhood of the theaters, picture shows, etc., when they should be at home and in bed.

A CANADIAN SURVEY.

Royal Commission (of Canada) on Industrial Training and Technical Education, Published, Ottawa, 1913, 4 vols.; Vol. I—437 pages; Vol. II, to page 1011; Vol. III, to page 1633; Vol. IV, to page 2354.

It treats of industrial training and technical education in relation to—

I. Elementary education.
II. Secondary and higher education.
III. Manual training, household science, etc.
IV. National problems.
V. Needs, duties, and rights of individuals.
VI. Organization and administration.
VII. Dominion development policy.
VIII. Apprentices, foremen, and leaders.
IX. Rural communities.
X. Schools for housekeeping.
XI. Industrial research.
XII. Vocational guidance.
XIII. Wider use of school plant.
XIV. Continuation classes.

The commission also gives information on the same topics in regard to England, Scotland, Ireland, Denmark, France, Germany, Switzerland, and the United States.

This is a very thorough and well-balanced survey of the topics of which it treats. It is of especial interest in the United States because of the fact that the relation of the Dominion Government in regard to education in the various Provinces is very like that of our National Government in regard to education in the different States. The cordial good will with which all the Provinces indorsed this project of the Dominion reveals their judgment of the importance of industrial training to Canadian prosperity, as is indeed stated in a memorandum of the Dominion Minister of Labor:

> Industrial efficiency is all-important to the development of the Dominion, and to the promotion of the home and foreign trade of Canada in competition with other nations and can be best promoted by the adoption in Canada of the most advanced systems and methods of industrial training and technical education.

The commissioners conceived it to be their duty—

I. To ascertain the present equipment and also the needs of industrial training and technical education in Canada.

II. To study the systems and methods of instruction in those topics in other countries.

III. To formulate and express opinions in regard to the information thus acquired; and likewise to make definite recommendations to the Government.

In the fulfillment of this duty they made, accordingly, a survey of Canadian industries and an educational survey of the schools.

With a view to the former they made a survey of the needs of workers in—

1. Manufacturing and other industries, e. g., of building construction, boots and shoes, carriages and wagons, chemicals, clothing, electrical plants, foodstuffs, furniture, leather and rubber, metals, rolling mills, foundries, machine shops, printing and publishing, textiles and clothing, wood and wooden wares, other industries and trades.

2. Agriculture, live stock, dairying, fruit culture, fisheries, mining (including quarries), forestry.

3. Commerce and transportation.

4. Home-making and housekeeping, including house sanitation, domestic servants, care of children.

It is clear then that the survey is of broad scope and practical nature. And not only is the scope of the work broad, but the various business topics are developed with a practical grasp of business development and at the same time with a strong hold of educational principles.

Hence the commission considered (*a*) the growth of the different kinds of business, (*b*) where raw materials are obtained, (*c*) where products are marketed, (*d*) the supply of labor, skilled, unskilled, and apprentices, (*e*) child labor.

Regard was given also to the hygienic conditions of the homes of workers, as well as factory conditions, for it is clear that those matters have a bearing on industrial efficiency.

The educational survey considered industrial training and technical education in (1) universities and colleges; (2) technical schools; (3) trade schools; (4) agricultural and extension work; (5) normal schools; (6) high schools, academies, etc., (*a*) elementary science, (*b*) rural science, (*c*) manual training, (*d*) domestic science; (7) elementary schools, (*a*) manual training, (*b*) domestic science, (*c*) rural science, including school gardens and nature study; (8) evening schools, (*a*) elementary, (*b*) technical; (9) correspondence courses; (10) apprentice schools; (11) organized play and playground; (12) physical culture and drill.

Research work, the need of it and provision for it, also received attention.

The commissioners express their delight at the interest in education that they found everywhere; at the greatly increased expenditures that are made in behalf of education, and, particularly, at the effort focused on boys and girls between the ages of 14 and 18; and they note with especial pleasure that a general feature of school work in all progressive countries to-day is the provision for continuation classes, technical classes, and art classes for the pupils who leave the day schools at 14 years of age. The classes provided for this purpose in Germany and Switzerland they find especially worthy of praise; yet nowhere, least of all in the most advanced countries, is there any tendency to brag of what has been accomplished, or a tendency to rest satisfied with progress already made.

I. The surveyors noted the fact that school authorities in other countries were much more apt than was the case in Canada to show to the visitors first of all the work of the elementary classes. This brought to attention the defects in the elementary classes in Canada, and the following recommendations were made:

1. All children up to the age of 14 should receive a good elementary education.

2. The experiences of the school should tend more directly toward the inculcation and conservation of a love of productive, constructive, and conserving labor.

3. After 12 years of age, for the children whose parents expect them or desire them to follow manual occupations, the school work should have a vocational bearing.

4. From this prevocational work, the commission believes, there would result (*a*) an awakened interest in manual occupations, (*b*) the aptitudes of pupils would be discovered, (*c*) the pupils would thus be guided into their life work.

5. The children would thus wish to keep in touch with the schools.

6. And the commission is of the opinion that the time and attention devoted to prevocational or trade-preparatory work in no way detracts from or hinders progress in general education of a cultural sort. They further maintain that the health of pupils must be carefully looked out for; that the harmonious growth of all their powers of body, mind, and spirit should be fostered; that they should learn to work as well as

play with enjoyment, intelligence, skill, and energy; that they should be trained to habits of obedience, courtesy, and diligence; and that high ideals of conduct and character should be maintained.

The belief is expressed that these new topics need not burden the time table, if studies are properly arranged and taught.

The following conclusions are drawn from the study of foreign schools:

That manual training should have a recognized place in the course of study from the kindergarten until the eleventh or twelfth year of age for cultural or self-realization purposes. In the later years this training is of special value in discovering the pupils' aptitudes and in developing skill.

The amount of time that should be devoted to this topic it is difficult to estimate, but in general one might say it ought to be one-fourth of the school time from kindergarten up to the age of 12.

Manual training, as well as industrial training, is of value in that it tends to a fuller recognition of motive in school work; and manual training, besides, is valuable in training the faculties to meet the things and forces of the outer world.

To meet the extra expense that would be incurred by conforming to these recommendations, the commission urged that a parliamentary grant should provide the sum of $350,000 a year for 10 years, to be distributed among the Provinces in proportion to the population of each in aid of elementary education.

II. Secondary schools in Canada have been much criticized. It has been said that their training is of use only for those who go to college; that they give their pupils a disinclination to manual labor; that they fail to interest the large number of students who have no taste for book-learning, but have ability in subjects that call for observation and original constructive talent, and that these pupils consequently leave school as soon as they can; that no provision is made for them in the way of part-time schooling or continuation classes, as is done elsewhere; and that for those students who go from the secondary schools to technical colleges no adequate preparation has been provided, so that as a result they lose much time, although the laboratory method of teaching science that is now being introduced into the high schools has helped somewhat.

The schools of applied science in Canada have the reputation of teaching their topics thoroughly.

The commission concludes (1) that secondary vocational education should be provided for pupils who are to follow manual occupations, e. g., agriculture, housekeeping, or business. (2) The opportunities given such pupils should be as favorable as are furnished in the regular secondary schools for those who are to enter the learned professions. (3) Suitable part-time or continuation education should be provided for those who have gone to work. (4) Technical education for the preparation of technical engineers and teachers and principals of technical schools should be given, and some financial support should be provided, so that the fees for such students may not be prohibitive.

III. Manual Training, Nature Study, School Gardening, Household Science, Vocational Education.

The term "manual training" is general and includes such terms as "educational handwork," "constructive work," "hand and eye training," "manual arts," and "sloyd." Its value lies in the fact that it develops and coordinates all the powers through the accurate use of tools. Muscles, brain, and will grow strong together.

Nature study, which is often taken to include school gardening, elementary agriculture, agricultural education, and rural education, aims rather to make the pupils acquainted with the phenomena of nature by observation and reasoning than to train them in productive management, and by its aid they may more easily pass to true agricultural vocational education.

Household science covers the terms "domestic science," "domestic occupations," "household arts," "housekeeping," and "home economics." It is closely connected with nature study and manual training, and up to the eleventh year the term should mean practically nothing else. A vocational motive may then appear.

Vocational education "indicates the form of education which provides definite training and definite knowledge expected to be useful in enabling an individual to carry on his vocation in a way most advantageous to the community and satisfactory to himself." It includes six headings: (1) Professional, (2) industrial, (3) agricultural, (4) commercial, (5) marine, (6) housekeeping. Industrial training and technical education include all the six classes except a part of No. 1, namely, training for lawyers, doctors, clergymen, etc.

Some persons would limit the terms "industrial training and technical education" to such training as looks especially to knowledge of and control of tools, machines, etc.; but in all countries visited by the commission a broader conception was in vogue. The towns visited by the commission included under the head of industrial education training in languages, arithmetic, science, history, literature, usually physical culture and civics, and often singing.

The terms "technical education" and "industrial training" shade into each other in meaning, but it may be said that when emphasis is laid on the handling of tools, materials, etc., the term to use is "industrial"; but when, on a knowledge of principles and their application, the word should be "technical."

In the development of these types of education, the Macdonald funds have been of great benefit.

IV. National Problems.

Canada, larger in area than all Europe, is great in natural resources of the farm, of the mine, of the sea; its possibilities are vast. But Canada's inheritance of good government and honorable life are more important than what nature has supplied. Education, then, is

needed to develop the resources both for the community and for the individual. The education must be practical, must develop a love for work and the habit of work; it must not overlook "culture," but—

culture is the residuum in character—in body, in mind, and in spirit—after every completed cycle of an educational experience.

It must not be forgotten that invigorating toil, invigorating bodily toil, is the only known road to health, strength, and happiness. Agri-culture, industrial culture, technical culture, liberal culture, have no origin in idleness, indolence, or sloth, which make for the corrosion of all the vigors of the physical, mental, and moral nature.

The steps in an educational experience are: Observing, reflecting on ideas, planning toward expression, feeling and managing into some form of expression.

The nation depends on the individual, and his development can be secured by a proper system of technical education and industrial training.

V. The Needs, Duties, and Rights of Individuals.

In the struggle of modern industry to produce goods cheaply in order to make profits, three elements are of importance—raw materials, labor-saving machinery, and organization. So much attention has been given to these that their effect on the individual worker is apt to be overlooked. But it is necessary to keep in mind the value of the individual, for he is the most important asset of the State.

The hope of civilization consists in (1) planning and working for the benefit and happiness of the home and individual, (2) increasing wealth and control of natural forces, (3) increasing friendship, (4) enlarging all the powers of individuals, (5) giving more opportunities for right living, (6) the forming of good habits and character, (7) the protection of children, (8) minimizing ignorance, disease, vice, etc. Modern industrial conditions have in many ways militated against all of these requirements. Even women and girls are absorbed in the factory system. More service from the school is needed to offset these tendencies.

VI. Organization and Administration of Industrial Training and Technical Education.

The commission recommends that those subjects should (1) be put under provincial control; (2) they should receive financial support from individuals, local communities, the Provinces and from the Dominion; (3) individuals who represent local industries, etc., should participate in the management; (4) opportunity for such education for those who have gone to work should be given; (5) equality in opportunity for all should be maintained; (6) cordial cooperation with existing systems of education must be kept up.

The aims of technical education and industrial training are:

1. The preservation of health and vigor.
2. Formation of good habits.
3. The development of the sense of responsibility and duty.

4. The preparation of the body, mind, and spirit for following some useful occupation.

5. The cultivation of the mental powers, the acquisition of knowledge and the development of the scientific spirit, with direct reference to the occupation.

6. The promotion of good will and the desire and ability to cooperate with others.

7. The maintenance of standards and ideals.

8. As all-inclusive and ultimate, the perfecting of the human spirit, the improvement of the quality of life itself, and the betterment of the conditions of labor, leisure, and living.

The means by which these ends are to be obtained are:

1. The discipline which comes from interest in work and from cooperation with others in educational classes till at least 17 years of age.

2. The conservation of the love of work and the satisfaction of doing it well.

3. The acquisition of technical, scientific knowledge.

4. The preservation and strengthening of a spirit of willingness to accept and fill one's place in organized society which implies relative positions and relative degrees of authority.

But it must be borne in mind that to bring these results about, the classes and courses must be made attractive to young people, and must be related to the daily life and occupations of the pupils; and, furthermore, they must meet individual, industrial, and national needs.

VII. A Dominion Development Policy.

It will be needful to formulate and develop plans (*a*) for those who are to continue at school in urban communities; (*b*) for those who have gone to work in urban communities; and similar provisions for rural communities.

For those who are to continue at school in urban communities, the commissioners recommended:

1. Intermediate industrial schools.
2. Coordinated technical classes.
3. Technical high schools.
4. Apprentice schools.
5. Industrial and technical institutes.
6. Technical schools for home economics and college for fine arts.

While for those who have gone to work in urban communities, the following system is advised:

1. Continuation classes.
2. Coordinated technical schools.
3. Middle technical schools.
4. Apprentice classes in workshops.
5. Industrial and technical institutes.
6. Extension lectures and correspondence courses.

For rural districts these schools are proposed:

1. Intermediate rural schools.
2. Rural high schools.
3. Continuation agricultural classes.

4. Continuation housekeeping classes.
5. County or district agricultural schools.
6. Young people's social service schools.
7. Schools for agricultural apprentices.
8. Colleges for agricultural study and home economics.
9. Correspondence courses.

This plan should be worked out and applied in such a way as to receive public confidence, public interest, and cooperation, and at the same time provincial control, local initiative, and local responsibility be maintained and developed. And for these purposes the Canadian Parliament should make a grant of $3,000,000 each year for 10 years, and this fund should be distributed equitably among the Provinces.

VIII. Apprentices, Foremen, and Leaders.

In Germany, France, England, Scotland, Ireland, and elsewhere the avowed aim of industrial training and technical education is not only to increase the working or productive efficiency of the pupil, but to develop all his powers, to prepare him for citizenship, to improve the industries, and to render the conditions of living more satisfactory. The interests of the pupils, parents, employers, the community, and the State are all considered. Even when compulsory attendance at continuation schools is exacted, there is a definite purpose of using the schools as a means to raise the whole community to a higher level of intelligence, ability, and good will.

The tendency of manufacturers is to call for the service of machine tenders instead of all-round mechanics; in other words, the tendency is to make workmen the adjuncts of machines. To offset this tendency, the school must supplement the work of the shop; in supplying the means of greater efficiency it should thereby increase the pupil's pride in his work, and so his pride in citizenship would be stimulated. Here lies the opportunity to make plain to him his relation to other workmen, and to the community and State as well. For this work the teacher needs special preparation, for industrial training alone may merely promote the greedy side of man's nature; and refining influences and sympathies, such as may be stimulated by good literature, for example, are needed, and a deep mastery of the principles of civics is essential. Such cooperation between the school and shop must be established as will help to develop the leaders, foremen, superintendents, and the like.

IX. Education for Rural Communities.

This is essential, for (1) country life contributes to the virility of the race; (2) agriculture is a means of creating wealth; (3) it furnishes a basis for manufacturing and other forms of business; (4) it will offset the increased cost of living.

Therefore it is highly desirable to teach children to love nature and to take an intelligent interest in rural pursuits. So lessons should be given in regard to cattle, sheep, farm machinery, poultry, soils, fertilizers, gardens, crops, foods, trees, flowers, and birds, and the English language should be cultivated as a means to develop this interest.

The consolidation of rural schools, as in parts of the United States, is a practical means for betterment. But as far as farming is concerned, it must be remembered that the proper place to learn farming is a farm, managed as a business concern to provide a living and competence for the owner or worker. For this purpose, farm schools which realize farm conditions as nearly as possible are advantageous.

X. Good homes furnish the support of community, State, and civilization. Therefore girls should receive opportunity to develop vocational ability for housekeeping and home-making.

Lectures, demonstrations, institutes prove valuable, for example, in teaching the subjects of foodstuffs and their preparation, nursing, domestic science, and industry. Domestic service might be established on a self-respecting basis.

XI. Industrial Research.

To-day manufacturers need experts, especially chemists, to show them how to eliminate waste and increase efficiency. A study of what Dr. Robert K. Duncan has accomplished in the Universities of Pittsburgh and Kansas is very suggestive. The plan provides for the creation and maintenance of industrial fellowships at those universities. The plan is briefly this:

1. The university provides the laboratory accommodations and selects the investigators.
2. The manufacturer indicates the topic to be investigated and supplies the funds.
3. Any discoveries made become the property of the manufacturer, subject to certain conditions.

XII. Vocational Guidance.

This does not mean helping boys and girls to get jobs; it does not mean choosing vocations for them; it does mean the bringing to bear of organized information and organized common sense on the choice of a vocation. Without it, there is untold loss to the individual, to the community, and to the State, because of maladjustment of talents to work. So, much cooperation is necessary. The methods in use in Scotland, in New York, and in Boston give much in the way of suggestion.

XIII. Wider Use of School Plant.

The movement to make wider use of the school plant has been especially marked in Buffalo, N. Y.; New York City; Rochester, N. Y.; and at Ottawa, Ontario. Evening schools, continuation classes, vocation schools, free lecture courses, social-center work, recreation clubs, moving-picture shows, all furnish valuable means for public education.

XIV. Compulsory Attendance at Continuation Classes after the Age of 14.

The hearty cooperation of State and individual are requisite to make continuation schools a success, as they have been in Germany, England, Scotland, and in some States of the United States.

BULLETIN OF THE BUREAU OF EDUCATION.

[NOTE.—With the exceptions indicated, the documents named below will be sent free of charge upon application to the Commissioner of Education, Washington, D. C. Those marked with an asterisk (*) are no longer available for free distribution, but may be had of the Superintendent of Documents, Government Printing Office, Washington, D. C., upon payment of the price stated. Remittances should be made in coin, currency, or money order. Stamps are not accepted. Numbers omitted are out of print.]

1906.

*No. 3. State school systems: Legislation and judicial decisions relating to public education, Oct. 1, 1904, to Oct. 1, 1906. Edward C. Elliott. 15 cts.

1908.

*No. 5. Education in Formosa. Julean H. Arnold. 10 cts.
*No. 6. The apprenticeship system in its relation to industrial education. Carroll D. Wright. 15 cts.
No. 8. Statistics of State universities and other institutions of higher education partially supported by the State, 1907–8.

1909.

*No. 1. Facilities for study and research in the offices of the United States Government in Washington. Arthur T. Hadley. 10 cts.
No. 2. Admission of Chinese students to American colleges. John Fryer.
*No. 3. Daily meals of school children. Caroline L. Hunt. 10 cts.
No. 5. Statistics of public, society, and school libraries in 1908.
*No. 6. Instruction in the fine and manual arts in the United States. A statistical monograph. Henry T. Bailey. 15 cts.
No. 7. Index to the Reports of the Commissioner of Education, 1867–1907.
*No. 8. A teacher's professional library. Classified list of 100 titles. 5 cts.
*No. 9. Bibliography of education for 1908–9. 10 cts.
No. 10. Education for efficiency in railroad service. J. Shirley Eaton.
*No. 11. Statistics of State universities and other institutions of higher education partially supported by the State, 1908–9. 5 cts.

1910.

*No. 1. The movement for reform in the teaching of religion in the public schools of Saxony. Arley B. Show. 5 cts.
No. 2. State school systems: III. Legislation and judicial decisions relating to public education, Oct. 1, 1908, to Oct. 1, 1909. Edward C. Elliott.
*No. 5. American schoolhouses. Fletcher B. Dresslar. 75 cts.

1911.

*No. 1. Bibliography of science teaching. 5 cts.
*No. 2. Opportunities for graduate study in agriculture in the United States. A. C. Monahan. 5 cts.
*No. 3. Agencies for the improvement of teachers in service. William C. Ruediger. 15 cts.
*No. 4. Report of the commission appointed to study the system of education in the public schools of Baltimore. 10 cts.
*No. 5. Age and grade census of schools and colleges. George D. Strayer. 10 cts.
*No. 6. Graduate work in mathematics in universities and in other institutions of like grade in the United States. 5 cts.
No. 7. Undergraduate work in mathematics in colleges and universities.
No. 9. Mathematics in the technological schools of collegiate grade in the United States.
*No. 13. Mathematics in the elementary schools of the United States. 15 cts.
*No. 14. Provision for exceptional children in the public schools. J. H. Van Sickle, Lightner Witmer, and Leonard P. Ayres. 10 cts.
*No. 15. Educational system of China as recently reconstructed. Harry E. King. 10 cts.
No. 19. Statistics of State universities and other institutions of higher education partially supported by the State, 1910–11.

1912.

*No. 1. A course of study for the preparation of rural-school teachers. F. Mutchler and W. J. Craig. 5 cts.
*No. 3. Report of committee on uniform records and reports. 5 cts.
*No. 4. Mathematics in technical secondary schools in the United States. 5 cts.
*No. 5. A study of expenses of city school systems. Harlan Updegraff. 10 cts.

*No. 6. Agricultural education in secondary schools. 10 cts.
*No. 7. Educational status of nursing. M. Adelaide Nutting. 10 cts.
*No. 8. Peace day. Fannie Fern Andrews. 5 cts. [Later publication, 1913, No. 12.]
*No. 9. Country schools for city boys. William S. Myers. 10 cts.
No. 11. Current educational topics, No. 1.
*No. 13. Influences tending to improve the work of the teacher of mathematics. 5 cts.
*No. 14. Report of the American commissioners of the international commission on the teaching of mathematics. 10 cts.
*No. 17. The Montessori system of education. Anna T. Smith. 5 cts.
*No. 18. Teaching language through agriculture and domestic science. M. A. Leiper. 5 cts.
*No. 19. Professional distribution of college and university graduates. Bailey B. Burritt. 10 cts.
No. 22. Public and private high schools.
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UNITED STATES BUREAU OF EDUCATION
BULLETIN, 1915, NO. 38 - - - - - - - WHOLE NUMBER 665

THE UNIVERSITY AND THE MUNICIPALITY

SUMMARY OF PROCEEDINGS OF THE FIRST SESSION OF THE NATIONAL ASSOCIATION OF MUNICIPAL UNIVERSITIES

WASHINGTON
GOVERNMENT PRINTING OFFICE
1915

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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, September 11, 1915.

SIR: The problems of industry, government, and life in the modern industrial and commercial city are numerous, large, and complex. For their solution are needed a larger amount of scientific knowledge and higher standards of intelligence among citizens. All the city's agencies for good and progress need to be united and vitalized for more effective functions. There is a growing conviction among thoughtful people that this can be done best by the municipal university, maintained as an essential part of the city's system of public education, or by a privately endowed university working in close sympathetic relations with all other agencies of education in the city. It will require much study of this subject to ascertain: (1) The need for the municipal university, (2) its functions, (3) the best means of organizing and supporting it, (4) its relation to all the phases of city life. The interest in this subject has resulted already in the organization of a National Association of Municipal Universities, which held its first meeting in Washington City November 9–10, 1914. The publication of the papers, addresses, and informal discussion of this meeting in the condensed form here presented will, I believe, promote further study of the subject. I therefore recommend that they be published as a bulletin of the Bureau of Education under the title "The University and the Municipality."

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

THE UNIVERSITY AND THE MUNICIPALITY.

INTRODUCTION.

For several years need has been felt for an association of the institutions of learning engaged in studying civic problems and training for public service.

At first it was thought that the universities and colleges controlled and financed by cities might unite with the National Association of State Universities. After mature consideration, however, the conclusion was reached that the interests of both State and city institutions would be best served by forming a new and separate association representing urban universities and colleges, particularly those cooperating in municipal affairs.

Accordingly the National Association of State Universities invited the representatives "of all municipal universities and other universities in cities interested in the service of their communities" to attend its meeting to be held in Washington, D. C., November 9 and 10, 1914. The invitation stated that a conference on the city university would be held immediately after the adjournment of the Association of State Universities.

The call for this meeting (which led to the formation of the Association of Urban Universities) set forth the tasks and purposes of these urban institutions as follows:

> The municipal colleges are aiming to do for their cities some of the things the State universities are doing so admirably for their States. Private institutions in cities, realizing the obligations resulting from freedom of taxation, are endeavoring to serve their local communities. The general public, on the one hand, is awakening to the value and necessity of expert knowledge; and the universities, on the other, are realizing as never before their duty to train men and women for municipal, State, and national positions. Since much of this is new and experimental, it is thought that a conference on the relations of civic universities to their local institutions and communities will prove helpful.

The call for the meeting also said:

> A statement from each institution with regard to some phase of its organization or methods would prove helpful. It is therefore requested that each college will send a delegate prepared to make a brief statement of the special features of its work.

These reports will be found in Part II of this bulletin (p. 42).

The following persons, representing the institutions as given, constituted the conference:

Fred E. Ayer, dean of the College of Engineering, Municipal University of Akron, Akron, Ohio.
Charles Baskerville, professor, College of the City of New York, N. Y.
Edward F. Buchner, Johns Hopkins University, Baltimore, Md.

W. P. Burriss, dean of the University of Cincinnati, Cincinnati, Ohio.
Walter E. Clark, professor, College of the City of New York, N. Y.
Charles A. Cockayne, Toledo, Ohio.
Charles W. Dabney, president, University of Cincinnati, Cincinnati, Ohio.
George E. Fellows, president, James Milliken University, Decatur, Ill.
A. Y. Ford, president board of trustees, University of Louisville, Louisville, Ky.
William T. Foster, president, Reed College, Portland, Oreg.
W. F. Gephart, professor, Washington University, St. Louis, Mo.
Frank J. Goodnow, president, Johns Hopkins University, Baltimore, Md.
W. E. Hotchkiss, dean, Northwestern University, Evanston, Ill.
Jeremiah W. Jenks, dean, New York University, New York, N. Y.
P. R. Kolbe, president, Municipal University of Akron, Akron, Ohio.
S. B. Linhart, professor, University of Pittsburgh, Pittsburgh, Pa.
Everett W. Lord, dean, Boston University, Boston, Mass.
Charles P. Norton, chancellor, University of Buffalo, Buffalo, N. Y.
William Orr, assistant commissioner of education, Massachusetts board of education, Boston, Mass.
John L. Patterson, dean of College of Arts and Sciences, University of Louisville, Louisville, Ky.
C. B. Robertson, University of Pittsburgh, Pittsburgh, Pa.
Herman Schneider, dean, University of Cincinnati, Cincinnati, Ohio.
A. Monroe Stowe, president, Toledo University, Toledo, Ohio.
P. P. Claxton, U. S. Commissioner of Education, Washington, D. C.
S. P. Capen, U. S. Bureau of Education, Washington, D. C.

The conference having temporarily organized at 4.30 p. m., November 10, and having appointed a committee on organization and permanent officers, adjourned until 9 a. m., November 11, when the following officers were elected for the coming year:

President: President Dabney, of Cincinnati.
Vice President: Prof. Lord, of Boston University.
Secretary and treasurer: Prof. Walter E. Clark, of the College of the City of New York.

After formal organization the association resolved itself into an experience meeting, each institution reporting upon the methods of cooperation with city activities which it had already adopted. The morning session and luncheon hour were occupied by these detailed reports.

The afternoon was given to a more general and formal discussion of the proper field and aim of the municipal university. The papers given in Part I of this bulletin embody the gist of that general discussion.

The name chosen for the new organization is the *Association of Urban Universities*. Membership is institutional, not personal. The following 16 institutions are the charter members: Boston University, The College of the City of New York, Hunter's College of the City of New York, Johns Hopkins University, The Municipal University of Akron, New York University, Northwestern University, Reed College, Temple University, Toledo University, University of Buffalo, University of Cincinnati, University of Louisville, University of Pennsylvania, University of Pittsburgh, Washington University.

PART I. AIMS AND PURPOSES OF THE URBAN UNIVERSITY.

I. THE MUNICIPAL UNIVERSITY.[1]

By CHARLES WILLIAM DABNEY.
President, University of Cincinnati.

The progress of education in America has been a steady process from the common school up to the normal school and college. As fast as a new type of school has become necessary it has been established, and its opportunities have been extended more and more widely and freely to all the people. Thus progressively have the American people placed the opportunity for education within the reach of all.

But what of equality of opportunity for the higher or professional education? We agree that the chance to get this education should also be within the reach of all. We believe, moreover, that colleges and universities which offer these opportunities should be so placed and arranged as to arouse the ambition of all the youth, and give them the chance to get that liberal, technical, and professional training which will qualify them for the highest service to their generation. The question then is, have we actually placed the facilities for the liberal, technical, and professional education within the reach of all our American youth?

The "log college," as it was called in early days, or the "fresh water college," as we now call the private literary college, has done great work for the country. Located near the homes of the people, it provided the opportunity for a higher education for many boys and girls who otherwise would not have gotten it. In its courses of liberal studies it trained most of our great men.

We should recognize, however, that the respect for learning bred by these old colleges created a sort of class feeling in America. Democracy means an honest homogeneity, and such homogeneity can not be produced unless all the people have an equal opportunity for the higher and the professional education. The free public college and the State university were necessary, therefore, to save democracy in America from class stratification.

But all these noble universities can not meet the needs of all our youth. What shall we do for the youth of the cities having no colleges freely open to all? To take an illustration from Ohio: Cleve-

[1] Address before the National Association of State Universities, Washington, 1914.

land has a great private institution to educate her people, but Cincinnati, having no such private institution, has chosen to educate its youth in a publicly supported college. Out of 2,200 students at the University of Cincinnati, over 1,500 are residents of the city. In a recent year, only 255 college students were sent away from Cincinnati to institutions of the grade of its university. An investigation of the financial condition of the families of the students at the University of Cincinnati teaches that if this city had no university giving free instruction, not more than 500 of these would be able to go off to college, and 1,000, at least, would be left at home without the higher or professional education. It is evident, therefore, that blessed as we are in Ohio with a large number of excellent colleges, they could not train all the students of Cincinnati who seek the higher education.

This, then, is the *raison d'être* of the municipal university. To believe in the equality of opportunity for all in the development of their lives, is to believe in the municipal university—the one thing needed to complete our American system of higher education.

But the city needs its university just as much as its people need it. In the development of every nation there comes the period of the cities. The age of the city has arrived for us. Originally a confederation of States, America is fast becoming a republic of cities. The most important thing revealed by the last census was the fact that the rural population has now dwindled to 52 in 100. In the Middle States it has decreased to 40, and in some States to 35 per cent of the population. In Ohio, for example, while the total population has increased 15 per cent in each of the last three decades, and the urban population 30 per cent in each, the rural population actually decreased 4 per cent the first decade and 6½ per cent the second decade. Everywhere the urban population is increasing ahead of the rural, and in most of the old States the total rural population is steadily decreasing.

The municipal university, therefore, is needed as the intellectual and spiritual dynamo of the city. The city, as well as the Nation, is awakening to a recognition of the necessity for intelligent and righteous leadership. It has passed through its period of corruption and shame and entered upon its period of idealism, of vision, and scientific reconstruction. Hand in hand with the demand for the purification of the ballot and of city administration goes the demand for higher ethical and educational standards. The university must make these standards, and it must train the leaders.

The old university was a thing apart, a city set on a hill. When it occasionally marched out of its doors to visit the people, music and banners celebrated the event. Some 30 years ago it took on what was called "university extension." The very name "extension" implied that the university needed to be set free to serve. "Uni-

versity extension" was, however, the beginning of a new era in the life of universities, developing in them a consciousness of their duty to the public. The service of some of our great State universities is a splendid illustration of what can be done by such institutions to promote the agricultural, industrial, political, and social, as well as the educational interests of their States. In similar manner, the university mind is becoming the city mind, and the city itself is becoming a university for training its own servants. Now, the municipal university is needed to develop this city-mindedness and to organize this study of the city's problems.

Since the application of science to government and industrial life has become so extensive it is necessary to educate men in an increasing number of new professions. Fifty years ago there were only about 5 learned professions, now there are more than 50, and new ones are constantly developing. No longer do we believe that a man who has had an academic education is thereby qualified to direct a bank, manage a factory, or run a railroad. In business and industrial enterprises of all kinds the demand for experts is constantly increasing. Experts are indispensable for most industries and desirable in all. Mere experience in practical work is no longer sufficient. In one profession after another we have learned to train experts not only in the theory but in the practice as well. Fifty years ago there were but two or three schools of applied science or technology in this country, now we are building these schools everywhere, and they can hardly meet the demands of the governments and the corporations.

For the same reasons cities are beginning to see that because a man is clever and a good political worker he is not thereby qualified to manage the finances, to direct the education, or to handle the water supply of a great city. A demand is growing up for municipal as well as industrial experts. We are training men to-day for nearly all the services except that of the municipality.

Who, then, shall train public servants for the city? Shall the city rely upon State and private institutions to perform the task? It is more American to provide the means of instruction and training at public expense and at home, and so enable all qualified youth to use them freely. Experience shows that the city must look to its own men and women to do its work, for only thus can it get the workers it requires.

The city must have a spiritual head and this spiritual head should be a university. The private university may do much to help the city and its schools; a State university, especially one like that of New York State, can do more; but a home municipal university, a part of the city's life, can do most to stimulate the city's education and life. The ideal head is the municipal university, the capstone

of the city's educational system. The justification of the municipal university is the need of the city itself.

The advantages of a large city as a location for a university need not be elaborated upon. The facilities afforded by libraries, museums, art galleries, hospitals, and various social and political institutions of the city, and by industrial laboratories, commercial establishments, and manufactories of the community are well appreciated by the universities. The advantages of making the local institution a municipal university—that is, a university supported and controlled by the city—are perhaps not so apparent. Undoubtedly there are disadvantages as well as advantages in this arrangement. Let us consider both sides of the question.

In the first place, what are some of the advantages accruing to the municipal university over those of the university in the city? In general they are the same as those of the State university compared with the private institution. The first advantage is the great one of regular, permanent, financial support based upon the steadily increasing property values of the city itself. Incomes from private endowments are constantly shrinking, with the result that these funds must be constantly added to. Like the State university the municipal university can have a mill tax, the best method ever invented for supporting an institution. It has been suggested that such a tax will diminish the interest of private citizens in endowing the institution, in giving buildings and making other donations to it. Undoubtedly the tendency will be in this direction. State universities do not receive large private donations, though there are conspicuous exceptions to this rule, like the University of Virginia. As a matter of fact, in the experience of the few municipal colleges in existence, the interest of private donors depends entirely upon the manner in which the institutions are managed and the appeal made for them. Every municipal university ought to be supported both by private endowments and public tax. It should have an endowment fund association made up of leading citizens, whose business it is to solicit bequests, endowments, scholarship and other funds as well as donations of buildings and equipments. There is every reason why all the people should through the public tax contribute their share to the support of the municipal college, but this is no reason why those having surplus wealth should not also contribute largely to its upbuilding. If it had to choose between public support and private endowment, however, the municipal college would certainly prefer public support as the surest means of getting an increasing income with which to maintain an institution competent to do the educational work of a growing modern city.

There is, moreover, everything to be gained by the municipal relation in making the work of an institution both effective in the

direct education of the citizen and in the service of the city. The municipal university is a vital organ of the body politic, a member of the family of the city and not a visitor in that family. It has all the advantages of being a part of the city's educational, social, and political organization. It has an immense advantage besides, in that all the citizens feel that the university belongs to them. Free tuition or tuition at low rates is, of course, a great aid in popularizing and democratizing the higher education.

Perhaps the greatest advantage of the municipal relation is that this connection gives the university on its side the right to ask the cooperation of every other city department and institution, thus opening them to its professors and students, and that it gives the city and its institutions on their side the right to ask the help of the university in all appropriate matters. If the object of the municipal university is to train men in real life for service in life, then no means can be more effective for realizing this purpose than this relation of the municipal university to the city and community. The influence and prestige gained by serving and cooperating with the city renders it easy also to secure the cooperation of the private institutions and industrial corporations of the district. They are eager to join a system which represents all the people in their aspirations for intellectual and moral improvement and higher efficiency in every department of their life.

As this development is somewhat new in the cities, perhaps some explanation of the cooperation methods of the municipal university may be interesting. In the first place, all the city's institutions, its schools, its libraries, its hospitals, its health board, its asylums, its public works, as well as its financial and administrative departments, are by this method opened up for the study of the university professors and students under the cooperative plan. In the second place, and as a result of granting these privileges, the city and its institutions have the right to call upon the university for assistance in testing old methods, or for advice in planning new work.

The most important part of the city's life is, of course, the school. The first duty of the university is to stimulate and build up the educational system. If the municipal university has a college for teachers, or a similar department, it can easily arrange to use the public schools for training new teachers. No special practice school can equal the real public school for this purpose.

The college can help the schools in many ways besides training teachers. Its faculty is a board of experts to advise the board of education of the city whenever called on with regard to courses of study and methods of teaching. The professor of elementary education in the college may well be the head supervisor of that department, and examine and test the teachers for appointment and promotion.

The professor of secondary education should perform a similar service for the high schools. This professor should also be the director of school affiliations and secretary of admissions for the university, and thus have control of the whole system of schools upon which the institution rests. As the university is the capstone of the city's educational system, the college for teachers should be the head of the public school system. There are possibilities here beyond the imagination.

The relation of the municipal university to the public libraries should also be intimate. The university library may be made the scholar's reference library of the city, and to this end might be a department of the city library itself. Where there are branch libraries, they should be used as centers of extension work.

The extension work of a municipal university can, by reason of these relations, be made much more effective than that of the private university in the city, or the university at a distance, for this work is then directly under the eye of the faculty, who can provide facilities greatly superior to those of the private institutions. In fact, the external class work of the municipal university can be made to correspond in method and results to the internal work, and full credit given for it, thus extending the university over the whole city. On the other hand there is not the same need in a municipal university for a correspondence department, since all students can come, either to the university itself or to these extramural centers.

If the university has a college of medicine and a department of social science, it may establish cooperative relations with all the hospitals and philanthropic institutions of the city. The faculty of the medical college should constitute a large part, at least, of the staff of the hospitals, and do the laboratory and investigational work for them. It is universally agreed by authorities on medical education that the teaching hospital is always the best hospital. All good health, medical, and surgical practice is based on science, and can make no progress without the aid of the scientific laboratory. Such work should be under university direction. The health board of the city will furnish training ground for sanitarians and physicians. The social science department of the university may make itself, if not the organic, still the real scientific and spiritual head of all the private as well as the public charity societies, directing their investigations, studying their problems, and training its students in the settlements, asylums, and other places where relief work is carried on.

The possibilities of cooperation with the city's own departments are of course unlimited. The university can serve the administrative department by holding civil service examinations. It should have a municipal reference library to supply information on municipal affairs

to the members and committees of council, to city officers and citizens. This library, if located in the city hall, will provide a place where officers and committees can meet and get expert assistance and reliable statistics. The relation thus established will produce the best results in legislation. It is evident that such a library will also become a valuable laboratory for professors and students.

The chemical and other laboratories of the university become at once the laboratories for testing and investigating all conceivable questions for the city. The bureau of city tests examines all the materials bought by the various departments of the city, with regard to strength, chemical composition, and commercial value. The budget and expenditures afford many problems for study. The engineering works, highways, sewers, waterworks, gasworks, transportation systems, etc., can be utilized by the engineering college for the training of its students; and the heads of these city departments will, in turn, use the laboratories and the experts in the college as they need them. The department of public works becomes, for example, a partner of the engineering college in training young men for the service of the city. The city is thus a great factor in the success of the cooperative course for educating engineers.

Such are some of the methods of the municipal university. Its theory of service to the public is the same as that of the modern State university, though its work differs as the field differs. Enough has been said to show that because of its close relation to the city government and the public and private institutions of the city, and because of its proximity to a variety of factories and commercial establishments, the municipal university can carry on more cooperative work than any other university. These conditions create the opportunity and the duty of the municipal institution.

The disadvantages and difficulties of the municipal university are the same as those of the State university. Being dependent upon the public for support, both classes of institutions must be responsive to the will of the public represented by the State or city government, and both are, therefore, subject to what is commonly called political control. Public taxation is the simplest, fairest, and wisest method of raising funds to support a public cause, and some public control must go with the tax. The boards of management are, therefore, appointed by governors or mayors, or elected by the people. The position of the municipal university to-day, in respect to political control, is just about that of the State university 20 or 30 years ago. The State university had to undergo a period of political disturbance, now happily passed, except for a few newer western institutions, and the municipal college may have to stand the same treatment. As the people of the States had to learn how to eliminate politicians from their

university affairs, so the people of the cities will learn to safeguard their institutions. Apparently the cities are learning this lesson rapidly.

The democracy everywhere sacrifices efficiency for freedom and opportunity; the people must learn how to educate themselves, to do everything for themselves. The democracy is a school, and it is now learning how to support and direct its own schools. How rapidly and successfully it is learning this lesson, our great and improving systems of schools and our magnificent, growing State universities testify. As the State universities have succeeded, so will the municipal universities. The municipal university is, in fact, merely an extension of the State university idea and will follow in its successful course, gaining everywhere by its experience.

Such is a brief statement of the case for the municipal university. It is not intended to say that municipal universities should be established in all large cities. Where large private institutions already exist, they will undoubtedly learn to do much of this public service and cooperative work, though they may not be able to do it under as favorable conditions as the city's own university. Institutes, colleges, and other smaller institutions will do parts of it. But with the development of cities in new places, there will be more municipal colleges. Akron, Ohio, is a striking case. The municipal university is coming where it is needed and when it is needed. Precisely the same forces which produced the State university will produce the municipal college. It is the latest product of our democratic education.

We have found, thus, that the municipal university is needed to democratize thoroughly the higher education in the cities. If we believe that the democracy must educate itself, then we must have municipal universities, just as we have State universities, to put the highest education within the reach of the humblest citizen of the city. The training it gives is parallel with that of the State university, but will be different as the work of the city is different. No matter how efficiently organized the private institution may be, the municipal university is more intimately bound up with its community. No matter how large and complete a State university may be, it can not educate all the people of the cities. The municipal university, by the very conditions of its existence, is inseparably united to the life of the people of the city. It differs from the university in the city in that its relation to the city is one of participation in the life of which it is a vital part, rather than cooperation with a life of which it is independent. A part of the city society, the municipal university is a vital organ of the body politic; it is, in fact, the brain directing all the other organs, nourished by them and stimulating them in return.

But the municipal university has a reason for existence aside from its service to the municipality. The ultimate reason for the existence of both the city and the State university is the development of men. The final test of all institutions is the educational test. The important question to be asked about every human institution is, What is it doing for the making of better men? Every city, therefore, ought to be a great educational institution in which no laws or customs inconsistent with this, the city's chief business, could be possible, and in which no man could live and not know the uses of knowledge and the power of truth. This we believe to be the foremost reason for the existence of the municipal university—that the city as a whole may be a great institution, not only to conserve every human interest, but also to develop every human being within its boundaries.

II. THE PRESENT STATUS OF THE AMERICAN MUNICIPAL UNIVERSITY.

PARKE R. KOLBE,
President of the Municipal University of Akron.

Higher education, i. e., the further training of high-school graduates, is carried on by many cities in our country. Certain types of such educational activity must here be eliminated in order to define clearly our conception of the real municipal university. Among the kinds of city-conducted higher education which independently have no place in the present discussion the normal school is most common. That this, however, is a related branch of work is shown by the fact that in two cities at least, New York and Cincinnati, the normal school bears a close relation to the city university. Various branches of technical and manual training work have also been given city support without thereby even approximating municipal universities, a fact explainable from lack of strict requirement of high-school graduation as an entrance prerequisite. Such technical training schools are especially encouraged among the municipalities of Massachusetts; as, for example, in her municipal textile schools. A third class of exceptions is to be found in the junior colleges. Whether the outgrowth of high-school "postgraduate" courses or called into being, as in California, by remoteness from college centers, the junior colleges approximate more closely the municipal-university type. All of these varieties, however, are to be eliminated from the present discussion.

The name municipal university is here understood to mean an institution of higher learning supported in greater part by municipal taxation, requiring graduation from a first-grade high school for entrance, and maintaining a four-year course in arts and letters, around which a greater or less number of other schools or depart-

ments may be grouped. Its participation in technical, professional, and graduate work, or in civic cooperation, will naturally vary with city and institution. Under a strict application of the above definition, there are only six municipal universities or colleges in the United States. In the order of their establishment on the municipal basis they are: The College of Charleston, S. C., 1837; University of Louisville, Ky., 1837; College of the City of New York, 1847; University of Cincinnati, Ohio, 1871; University of Toledo, Ohio, 1884; Municipal University of Akron, Ohio, 1913.

Mention should also be made of the following normal colleges which are financed and controlled by municipalities and which, according to the Bureau of Education, are of college grade: Chicago Normal School; Harris Teachers' College, St. Louis; Hunter College, New York; Campbell College, Holton, Kans. The preponderance of normal school work in such institutions, however, renders them scarcely subject to classification as municipal universities. Finally, there should be mentioned the case of the Georgia School of Technology, which, although a State school, receives an annual appropriation of $10,000 from the city of Atlanta for general purposes.

Of the six municipal universities, only two, the College of the City of New York and the University of Louisville, were originally founded as municipal institutions. The remaining four were first established as private foundations and were later adopted by their native cities. The scope of work of the municipal universities varies from the broad field of the University of Cincinnati with its many technical and professional departments and its graduate school, to the single college of liberal arts as represented by the College of Charleston. Two institutions, Cincinnati and Akron, carry on courses in cooperative engineering, a system which originated at Cincinnati and which is reckoned among the great, modern educational developments.

The legal status of the city university in the United States is by no means a simple matter. Generally speaking, we may divide municipal universities into two great classes: First, those which exist by city charter and secondly, those which are authorized by State laws directly. The difference is not a basic one, since even city charters must be authorized by State laws. The State of Ohio alone, however, has incorporated into its legal code provisions by which any city in the State may establish a municipal university and support it by special taxation. The existence of these laws explains the presence in Ohio of three out of the total six municipal institutions. The remaining three owe their existence to special acts of legislature or to ordinances of city councils authorized by charters granted by the legislature, i. e., they represent special cases, while the Ohio institutions operate under a general State-wide law. The encouragement offered under the Ohio plan toward the founding of municipal uni-

versities is obvious. At present the possibilities of new institutions of this sort are doubtless greater in this State than in any other.

In the course of an attempt to ascertain conditions in all parts of the country, a letter was recently directed to the attorney general of each State containing the following questions:

1. Do the laws of your State make any provision for allowing municipalities to support institutions of higher education by city taxation?
2. In case the State code contains no such provision, would municipalities in your State have the power to carry on such work on their own initiative?

Answers were received from 39 States; Alabama, Colorado, Georgia, Maine, Montana, Nebraska, Rhode Island, Tennessee, and Vermont not responding. In many cases, the letter was referred to the State superintendent of education for reply.

Of the total number, 35 States replied that the laws of their State make no provisions for municipal higher education. Of the remaining four, Ohio has already been discussed. The attorney general of Mississippi declares that the municipal chapter of the code of his State confers upon cities "very broad and comprehensive powers in regard to the establishment and maintenance of the schools" and that by this power, cities may have "schools of higher branches." The New Jersey school law provides for the education of youth from 5 to 20 years with no specification of the character of schools to be maintained. Virginia's code states that "an efficient system of public free schools shall be established and maintained," a statement which Assistant Attorney General Garnett believes would be interpreted by the court as covering municipal institutions of higher education.

In answer to the second question, 31 States deny definitely to cities the independent power of establishing municipal universities. Of the remaining 8 from which an answer was received, Arizona infers that no such power is vested in the city. California replies that cities organized under the general incorporating law have no power, while those operating under freeholders' charters may impose taxes for municipal purposes without the enactment of a general law expressly conferring that power. In Minnesota, the State department of education asserts that cities have the right to carry on higher education, although a close search of the school laws fails to sustain this contention. The liberal grant of power in Mississippi and Virginia has been discussed above, as has the case of New Jersey. In Oklahoma, the matter is reported as undetermined. Ohio, with its general empowerment to all its cities forms a special case.

A summing up of the whole situation shows that, under present conditions, only Ohio, California (freehold cities), Minnesota, possibly Mississippi, Virginia, and New Jersey would allow the establishment of municipal universities without further legislative enactment on the

part of the State, while New York, South Carolina, Georgia, and Kentucky have granted special privileges to individual cities.

It must, however, be borne in mind that in no State is the founding of municipal universities forbidden, and favorable legislation could doubtless be secured from the State legislature by any city desirous of embarking upon such an enterprise. The enactment of State-wide authorizing laws, such as exist in Ohio, will doubtless do more than anything else toward spreading the movement. Such laws, however, will scarcely spring into existence automatically, nor until some definite emergency arises. In Ohio the activities of the University of Cincinnati called forth the existing laws, and the foundation of Toledo and Akron is doubtless due to the fact that such laws were already in existence. The spread of home rule among cities will also do much toward smoothing the path for future municipal university foundations, although home rule without the privilege of determining rates and purposes of taxation is a poor thing at best. In the final estimate, we dare not lose sight of the fact that laws always follow rather than precede any great movement. They represent the result, not the cause. The need for municipal universities is growing. Cities everywhere are beginning to appreciate the importance of local institutions of higher education. Such a movement will inevitably create its own conditions, make its own laws and assure its own success.

III. COOPERATIVE METHODS IN EDUCATION.

By P. P. Claxton,
United States Commissioner of Education.

The modern democratic commercial city is a new thing in the history of the world. There has been nothing like it, and we must deal with it without precedent, as we must in this country deal with all problems of government and of industrial and civic life. Democracy is a continuous experiment, and every day presents new problems for which we have no precedent. Our only hope is in being able to arrive at fundamental principles by careful inductive reasoning and to gain skill in applying them to new concrete cases.

The great city of a half million or a million people is a State within itself, larger than many of the States of the Union. One city represented in this conference has a larger population, many times more wealth and variety of interests than the whole of the United States had when Washington was President. The railroad systems of a continent converge there. The commerce of the world centers there in larger variety and quantity than it did in any ancient city. These cities have many new and difficult problems, as of sanitation, transportation, water and light, school and public libraries, and

above all of democratic government. Most of them have the task of rebuilding for permanency. Little has been done according to definite plan and for permanency. Temporary structures, to serve immediate purposes, were erected with the expectation that they would soon be replaced. The time has now come for permanent buildings, permanent streets, permanent parks, permanent water supply, all of which should be provided according to definite plans made in the light of present knowledge and of future requirements and possibilities.

Our city government also developed without plans from the country town meeting and the form of government of backwoods districts and counties. The machinery of government was not planned with modern conditions in view and could not be so planned, because these conditions were undreamed of. Cities have grown so rapidly that we have not been able to readjust this machinery of government, and so it has broken down. We talk much about inefficiency and corruption, but these are not greater than we might have expected. There is need of new governmental machinery, intelligently constructed; there is need for the kind of help the great municipal university should be able to give. The State university, located in the village or small town away from any large center of population, and having no direct connection with municipal affairs, will hardly become conscious of the opportunity and the need of this kind of service.

One of the charges made against the public schools of to-day is that their pupils fail to gain any kind of practical knowledge. This complaint is made especially by those who employ boys and girls, either from the elementary schools or the high schools. Bankers say they are not expert bankers, and indeed they are not, and should not be expected to be. Newspaper men say they can not write English. Merchants tell you they are not expert salesmen, or clerks, or bookkeepers, or accountants; plumbers, that they do not know the plumber's trade. Some of these criticisms seem to be just, but the shortcomings are not the fault of the public schools. They are due rather to changes in democratic, social, and industrial conditions. A generation or two ago we were a rural people. Boys worked with their fathers on the farm or in the shop. They and their fathers worked at simple but whole trades, requiring a complete sequence of related processes. Work was done with simple tools and implements. Boys could work intelligently and sympathetically with their fathers, gaining thereby some practical knowledge of various trades and industries. Now and then they obtained at least a glimpse of underlying principles. There was frequent call for the question, why? From work like this boys went to school with a desire to learn something of the principles involved in the work which

they had been doing, of principles they needed to know in order to do it better. The home was a manufacturing establishment, and the experience of girls at work with their mothers was the counterpart of the experience of boys at work with their fathers. These girls went to school with similar desires. The home has now ceased to be a manufacturing institution, and girls are deprived of these experiences. Boys, in the city at least, can not work with their fathers in the bank, in the office, or in the great factory with its complex machinery. They have little opportunity for the valuable practical experience and teaching their fathers had when they were boys. The schools as schools are far better than they have ever been before, and are doing the work for which they were established better than ever before. But the school is only one of many agencies of education. Other agencies have failed, and the schools have not been able to make good their failures. With manual training, cooking, and sewing in the schools, we are trying to restore some of the home experiences and teachings of an earlier day.

The same principle is involved in the education of the high school, the college, and the university. School life and home life must supplement each other here also. Luther understood this general principle. When he made his plea for universal education he said he did not expect all children to go to school all the time. His plea was that children should spend a few hours of each day in school and the remainder of the time at some useful work at home helping to support themselves and their families. Many educational reformers have had in mind some such cooperation as this, some intelligent cooperation by which the parallel threads of life in school and life out of school might be woven into one web. In the shops students apply the principles learned in school, and this application gives content to these principles, otherwise empty and meaningless. From the shops they return to their work in college hungry for knowledge, feeling their need for an understanding of principles that will enable them to work intelligently.

The municipal university serves a large population having varying industrial, social, civic, cultural, and spiritual interests, but living in a restricted territory, every part of which is easily and quickly accessible. Within the limits of this restricted territory are brought together all the interests and problems of modern life. The State of a million people may apportion its governmental activities among a hundred counties. A city of a million people is, even for the details of Government and the practical application of laws, a unit. Social contrasts are violent; rich and poor, millionaire and pauper, learned and ignorant, good and bad, all live on the same street or on the same square. The city is made up of all classes and is conscious of its heterogeneity. Schools, churches, libraries, theaters,

lecture halls, museums, art galleries, clubs, saloons are placed side by side along the street or face each other across the square.

College students of both sexes, interested in education, transportation, sanitation, manufacturing, social welfare, literature and art, and whatever else, find here abundant material close at hand. The city thus becomes a great laboratory and supplies all necessary laboratory material without cost. All studies become interesting as life itself. It becomes easy to follow the advice of the manager to the poet in the prelude to Goethe's Faust—

> Grasp the exhaustless life that all men live!
> Each shares therein, though few may comprehend.
> Where'er you touch, there's interest without end.

Books on any of these subjects are illustrated by the life and activities immediately about the students. They may participate in the things they are studying. They bring to their studies a rich content of experience of city life and find many opportunities for immediate application of principles learned. Their college studies throb with interest and the process of learning is quickened.

When Dean Schneider began this plan of putting boys to study in college and to doing practical work for pay on alternate weeks, he said he thought the full amount of college work usually done in four years might be done by the new plan in six years. It is now done in five, and the students have a mental fiber seldom found developed in students giving the full four years to theoretical studies given within the college walls without opportunity for their practical application.

The influence of the university on the public schools of Cincinnati has been very great. The university completes a system of democratic education, all parts of which are open and free alike to all. Such a complete system of free public schools definitely and thoroughly organized and supported by the city for the use of all its people becomes a source of inspiration.

In this connection let me say that all education of whatever kind should be free. I do not believe in furnishing food, clothing, or shelter free of charge to any one who is able by any kind of an honest labor to provide these things for himself. But education of whatever grade should be free to all; and the cost would not be great. At $100 per capita for tuition, $20,000,000—enough to build one first-class battleship and one first-class cruiser—would pay the tuition fees of all the students now in the colleges of the United States. Thomas Jefferson wanted tuition free to all through three years of the elementary school. Gradually this line was moved up until the tuition became free in all the grades of the elementary school and then of the high school. Why should not higher education be free also? Education is not for the good of the individual

alone; it is for the good of society, of the State—of the community served, whether that community be large or small. And this is true of higher education to a greater degree than it is of elementary or secondary education. In proportion as education is advanced, does it become altruistic. A man who learns only to read and write may serve himself chiefly thereby. The educated physician does something more than make his own living and save his own life. He serves society, and society can not afford to have anything less than the best possible service of this kind. The same principle applies to all professions and occupations requiring extensive learning and a high degree of technical training. Municipal universities and all others should be free to all who will attend them and do the work for which they provide opportunity.

In the city having a great university at the head of its system, this university becomes a goal for every child, whether it ever attains it or not. When the school system contains only elementary schools, the majority of children quit before finishing the elementary school. Add a high school, and soon most children will complete the work of the elementary school and a few will enter, and fewer still complete, the work of the high school. Add the college as an integral part of the system, and many more children will remain in the high school for graduation, while some will enter college. Add to the college the graduate work of the university, and the attendance in college will increase, and many more students will remain for their college degrees, while a good number will do university work. It gets into the mind of the people that the complete school system is theirs and that they are falling short of their opportunities if they do not make full use of it. Those who do not do so feel under obligation to find or make an excuse for their failure.

Within a period of two years Cincinnati doubled its appropriations for public education and raised the standard of required qualifications for teachers a little higher than the standards for teachers in any other city in the country. The university and its department of education did much toward bringing this about. On the other hand, the department of education in the university was made better by the fact of its close connection with the schools. Departments of education, important and valuable as they are, have as yet little definite knowledge of education to give their students. Professors of education are in the condition in which professors of agriculture were before the establishment of the agricultural experiment stations. Our doctrines of education are still mostly personal opinions. We lack definite knowledge, such as can be had only through carefully checked scientific experiments. Such experiments may be made most successfully by the departments of education of a municipal

university, acting in cooperation with the public schools of the city. No doubt we shall soon obtain in this way a considerable body of definite knowledge of at least some phases of education.

The municipal university may also make fuller use of short courses and extension courses than other colleges and universities can. It may learn sooner than others that practical education may also be education for culture in the best sense; that culture is not a thing separate and apart, a thing within itself; that it does not come from any particular course of study; that it does not come from studying the "humanities" in school or college; that it does not come necessarily from any kind of class work or from school at all, but that it is a by-product of intelligent living, with good will and strong purpose to use all one's energies for the benefit of one's fellow men, a kind of deepening and widening and refining and ripening of the human soul, which comes as the result of right living.

Many changes in the traditional college curricula may need to be made to adjust them to the use of the municipal university. Fundamental principles will hold. Their practical application will require wisdom and tact. This readjustment we have already begun to make. In planning cooperative courses the principles of the schools of the Young Men's Christian Associations should be kept in mind; teach a young man what he wants to know next. The principle is good and its intelligent application may result in a more systematic, better organized, and more vital body of knowledge than do some of our carefully wrought out courses—on which, however, there is lack of unanimous agreement.

Not only will the municipal university require different courses of study; it will require also for its faculties men and women of a type different from that to which most college instructors belong. The cloistered professor will find himself out of place here. It is no place for cloistered seclusion and dreams that do not take hold on life. There will, I believe, be no loss in fineness, but a gain in strength through much wrestling with difficult and complex problems of city life. This will produce qualities in college men and women different from those produced by much reading and thought with little practical application.

The best men and women, the great prophetic souls of the world, have long dreamed of the culture state, from which ignorance and vice shall be banished. Some of the little Greek city States almost attained it for the few who composed their leisure citizen class. One naturally thinks of Athens. But this beautiful flower of civilization and culture sprang out of the dungheap of the rotting festering masses held in slavery and serfdom. For one citizen there were 10 slaves. Men have dreamed of a city of God, that shall come down out of the

heavens and be among men. The culture state, the city of God, are now more nearly possible than ever before in the history of the world. Our knowledge of the forces and laws of nature, our skill in applying scientific principles to industrial life and in the invention of labor-saving machinery make possible for every man the service of more than 10 slaves without taking away the freedom of any. Better agricultural implements for the tillage of the soil, harnessed water power, imprisoned steam, the obedient electric current—these all serve us better, more faithfully, and more effectively than could an army of our fellow men enslaved, ignorant, and brutalized. It has at last become possible for all men to have some leisure, some freedom from slavery to their backs and bellies, to their physical wants. This is true to a larger degree of cities than of the country. We have already in many places a workday of 8 hours for only 5½ days in the week—44 hours out of 168; in other words, more than half the waking hours of a laboring man are left free. Here is the opportunity of the municipal university that is able to see it and organize and direct all the educational agencies of the city, direct them toward the task of assisting these people to use their leisure aright. To turn these leisure hours to uses of culture will not be difficult in the city, where people live close together and distances are short and transportation quick and easy. You already have in the cities all or most of the agencies needed—libraries, art galleries, churches, theaters, lecture halls, parks, and the like. You only need add the great municipal university, supported by all the people, at the service of all the people as an organizing and directing agency, to build the great democratic, industrial culture city, cleaner and sweeter and better and stronger than the world has yet known and than has ever been possible before.

Let me add a word of caution. When you have a municipal university in any city, do not draw your robes about you and say, "We are urban people; politeness (city ways) belongs to us; with the uncultured multitudes of the rural State we have no dealings." If you should do this then I should pray that you might die quickly, for sooner or later you would have to die, and it would only be kindness to save you from the pains of lingering death. Remember the Italian cities of the Middle Ages and their fate. Do not begin to say, "We are supporting our municipal university; why should we help support the State university?" The city is a part of the State and must share in the common burdens of the State, as it shares in its common good. No people can cut loose from the rest of the world and live. All exclusive aristocracies must die. The life blood of the world must flow through one's veins if one would live. One must feel the heart throb and pulse beat of humanity, be inspired by all

its worthy interests and walk in all its strength. One must give, if one would live.

The time of the municipal university has come. City after city, in rapid succession, will establish or develop some institution to serve it in this capacity. Probably within a quarter of a century most cities of 200,000 people and over, and some even smaller, will have such institutions at the head of their systems of education, organizing all other agencies, directing their energies, and inspiring the people to strive for higher and better things.

IV. THE PHILOSOPHY OF THE COOPERATIVE METHOD.

By HERMAN SCHNEIDER,
Dean of the University of Cincinnati.

Your question, in which you ask, "What recommendations would you offer for the extension of our college work?" can be reshaped as follows: What is the function of the college, and how can it best fulfill it?

The function of the college in the United States is so to guide the training of men that they may render the truths of history, of philosophy, of economics, and of science serviceable to all the people of the city, from the head of the city government down to the last mite of humanity. It should seek through the agency of trained men to bring these governing truths naturally and profitably into the daily and hourly doings of the people, according to their needs. Its system of training should be so devised that all the truth it possesses shall surely reach into the kitchens of the tenements and into the councils of the greatest banks, into the dreariest job that ever a child goes to and into the power plants that carry him there. Whatever the people of the city do, whether it be in manufacture, commerce, education, transportation, housing, government, baking bread, or building bridges, there the truth should be wrought into the working organism of the doing of it. This is the basic philosophy of the matter.

"Through the agency of trained men." It is largely a question of the skill of the men trained; for the college knows the basic laws, whether they apply to the operation of a city department, the writing of an editorial, the painting of steel bridges, the slaughtering of cattle, the auditing of a bank, the inspection of tenements, or the manufacture of a steam engine. The college knows these laws—as theories. It can not apply them; it is not its business to apply them. The application must come through those who do the work; and the breadth and thoroughness of each man's knowledge of the science underlying his task must be in direct proportion to his position of

responsibility in the scale of work. Or, to put it in another way, the men who devise and direct are in a position to apply the theories, and practically they are the only persons who are; they have the authority. These men should receive the higher training.

Who are these men? How are they found? What is their training? In nearly every case they are men who, at an early age, began work at the very bottom; they are found by the winnowing processes of daily work; and their training is the accession of detail after detail, process after process, burden after burden, until a knowledge of the whole complex interwoven mass of forms, methods, materials, dangers, subtle meanings, and counter checks enables them to devise and direct better than men selected and trained in any other way; and the one thing these men feel they need most is a knowledge of the science which they see underlies every detail, every method, every subtle cross current of their work; just as every college man feels the lack of what the other man has. Nor does it seem possible to apply the theory held in one head through the practical knowledge necessary to successful devising and directing held in another head. The theory can rarely be applied vicariously; it seems necessary to have a chemical combination rather than a physical mixture. This is not strange, since the theory is a basic concept, which, to be effective, must be translated into terms of men, materials, environment, mental capacities, competition, human weaknesses, established methods, and realizable possibilities. The great mass of truth, the discovery, collation, and teachings of which constitutes the work of the college, must be recast with practical knowledge as a flux into usable forms of everyday work and life.

In order, then, to render the truths of philosophy, of history, of economics, of science, surely and directly available in the day's work, it is necessary to teach them to men who are also well trained in practice. Obviously the training in theory and the training in practice should be organized into one well balanced, coordinated, centrally directed plan.

The college should be the directing center of the work. It is true that many men in college life believe that when the college expounds its doctrines, it has done its part. But if a college is what it should be, its faculty will be possessed of a passion to make its learning a vitalizing, ameliorating, constructive force in every form of human endeavor.

Here you have the juxtaposition of the two philosophies of education; one the chance casting of bread upon the waters, the other the organized supply in the form in which it is needed, directed to the place where it is needed. The latter is the philosophy of the cooperative system.

V. THE RESPONSIBILITY OF A MUNICIPAL UNIVERSITY IN RELATION TO THE CITY SCHOOLS.

By WILLIAM PAXTON BURRISS,
Dean of the College for Teachers, University of Cincinnati.

The relation which exists between the municipal university and the city schools is one of closest mutual dependence, and it may be said that there is no other way in which a large center of population can become so fully conscious of the interdependence of elementary, secondary, higher, technical, and professional education as through this bringing together of all parts of a complete educational system face to face in organic and vital relationship within a municipality.

What, then, is the responsibility of the municipal university, in view of such a relationship to the city schools as has been indicated, and how shall this responsibility be met? How can the municipal university best serve the city schools in turn for the service which makes its own existence possible and worth while?

It can do this by enlisting the services of educational experts for the following lines of work:

(1) The professional training of persons otherwise qualified for teaching in the public schools.

(2) The formation of merit lists from which appointments and promotions to all teaching and supervisory positions in the city schools shall be made, no matter where trained.

(3) The professional improvement of teachers after appointment to positions in the city school service.

(4) Directing in the study of city school problems, making educational surveys, etc.

(5) Assisting the city school superintendent in a manner similar to that of cabinet officers in the consideration of educational policies for the city.

(6) On occasion, to perform scout duties in finding suitable persons for the city school service.

(7) Active participation in the work of educational associations, such as schoolmasters' clubs, principals' associations, etc.

With so many important lines of service to be rendered, it need hardly be said that persons possessing an unusual combination of qualifications are necessary. They must have had university training, and their study and achievements in the field of education must have been such as to command the respect of university faculties on the one hand and that of the teaching corps in the city schools on the other. Through experience, as well as through reflective study, they must have a clear grasp of the significance of all phases of education. They must not be narrowly pedagogical, but have a comprehensive view of educational values, aims, and means and possess the

the power to teach teachers. They must have an enthusiasm for education in its lower stages and a sympathetic appreciation of its difficulties. They must know how to apply ideal as well as objective standards in testing teaching ability. They must have technical equipment for the scientific study of educational questions.

With a group of experts who have such qualifications, we may now consider the machinery for realizing the purposes specified above. The relation of mutual dependence must be definitely recognized and calls for the closest cooperation. This is secured, let us say, through the organization of a college for teachers as a joint enterprise of the board of education of the city schools and the board of directors of the municipal university.

By mutual agreement these respective boards entrust the oversight of this college to a joint committee consisting of the president of the municipal university, a member of the board of directors of the municipal university, the city superintendent of schools, and a member of the city board of education. This copartnership being formed, the available resources of the municipal university and of the city schools, for the training of teachers, are pooled.

On the one hand, the faculties and facilities of the municipal university are placed at the disposal of a college for teachers for the academic preparation, selection, training, and improvement of teachers in the city schools, this agency, with its superior advantages, displacing the usual city normal school. On the other hand, the board of education places the city schools at the disposal of a college for teachers as a working laboratory for practice teaching, observation of teaching, and the study of educational problems under the expert oversight of this college. In certain instances, also, specially qualified members of the regular city school corps of teachers and supervisors are available as members of this staff of instruction.

The faculty of the college for teachers should consist of the president of the municipal university, the superintendent of the city schools, professors, assistant professors, and instructors in education, and members of other faculties of the university giving courses which are expressly arranged for students expecting to become teachers and which have been approved by the professors of education. This faculty should have all of the functions usually belonging to college faculties, and one of the professors of education should serve as dean.

This, briefly, as a result of the experience in Cincinnati in the past nine years, is the form of organization and administration which is consistent with the character of the work undertaken, which recognizes the mutual responsibility of the municipal university and the city school system in this work and which insures a spirit of cordial cooperation between them.

The number and character of the professional programs, which the college for teachers in a municipal university should offer for the training of teachers as such, will depend upon the needs of the city school system as organized.

The college for teachers in Cincinnati provides five general classes of such programs as follows:

(1) One-year programs for students who have completed a course in a standard college and who have included in such course certain studies as a foundation of the study of education and teaching. The completion of one of these programs leads to a graduate diploma in education, to an Ohio State certificate without examination, and to a preferred list from which appointments to positions in the city schools are made. Programs of this character are offered to those who wish to teach in the elementary or high schools.

(2) Two-year programs for students who have completed a two-year course in a standard college and who have included in such course certain foundation studies. The completion of one of these programs leads to the degree of bachelor of science, to an Ohio State certificate without examination, and to a preferred list from which appointments to positions in the city schools are made. Programs of this character are offered to those who wish to teach in the regular positions of the elementary schools, as well as to those who wish to qualify for special positions, such as kindergarten directors, teachers of art, teachers of German, teachers of household arts, or teachers of defectives.

(3) Two-year programs of studies for students who have satisfied the regular entrance requirements and who wish to qualify for special positions without proceeding, for the time being, to fulfill all the requirements for a degree. The completion of one of these programs leads to an appropriate diploma in education, to an Ohio State certificate without examination, and to a second list which is drawn upon for appointments to positions in the city schools whenever the corresponding preferred list is exhausted. Programs of this character are offered to those who wish to qualify for positions as teachers of art, teachers of household arts, and assistant directors in kindergartens.

(4) Courses in education are also offered to properly qualified teachers of experience who wish to become instructors in education, supervisors, critic teachers, or administrators in educational positions requiring extended experience and advanced study. Such courses are accepted in partial fulfillment of the requirements for the higher degrees conferred by the graduate school.

(5) Special courses for teachers are also offered by the college for teachers as well as by the other colleges at the university, the completion of a certain number of which leads to advancement in salary.

An important part of all programs which lead to eligible lists from which appointments to positions in the city schools are made consists of the practical work in the city schools under the critical supervision of members of the staff of this college. Moreover, general supervisory oversight of this staff continues during the first year after a teacher's appointment, this first year being considered a trial year and virtually a part of the teacher's professional training.

Scarcely less in importance than the work of professional training which we have just outlined is the service which the college for teachers renders in connection with the merit system of appointment and promotion.

Without a merit system of appointment and promotion, no city school system can attain to the highest level of efficiency, nor can a college for teachers achieve the highest usefulness without such a system, if indeed it could exist at all. In proportion as the merit system succeeds, therefore, the college for teachers succeeds. The standards of the one become the standards of the others. For this reason, and because the professors of education are selected on account of their expert knowledge of education and teaching, they are placed in charge of the merit lists from which appointments and promotions to all teaching and supervisory positions in the city school system are made.

First or preferred lists and second lists for each class of regular positions and special lists are formed by them for this purpose. First or preferred lists for appointment and promotion are formed from candidates whose teaching has been approved and who are graduates of standard colleges, provided they have completed an approved program of professional training as a part thereof or in addition thereto, or in lieu of such professional training have had not less than two years of successful teaching. Second lists are formed from candidates who have completed a first-grade high-school course or its equivalent, and who have taken an approved two-year professional course or in lieu of the latter have had not less than two years of successful experience in teaching and one year of professiona training.

The listing and ranking of candidates for appointment to teaching positions in the elementary schools is in charge of the professor of elementary education with the cooperation of the supervisors concerned in cases affecting the special departments. The listing and ranking of candidates for appointments to teaching positions in the high schools and for promotion within the high-school service is in charge of the professor of secondary education.

By means of this system of appointment and promotion the qualifications of teachers have been steadily improved. The superintendent

and board of education are no longer harassed by applicants and their friends; political and sectarian influences have been eliminated as factors in securing appointments; professional spirit has been stimulated, and many other improvements have been brought about directly or indirectly as a result of making a high standard of merit the only sure road to preferment.

The opportunities for the improvement of teachers after appointment to positions in the city schools, offered by the municipal university, are by no means restricted to the college for teachers. In response to the requests of teachers themselves, the other colleges of the university offer a great variety of courses at hours which do not conflict with the classroom duties of teachers. Under the direction of the superintendent of schools, the dean of the college for teachers prepares an annual exhibit of opportunities for instruction for teachers in the various colleges of the university and elsewhere in the city, the same being printed and distributed by the superintendent as a bulletin of information for teachers. Many teachers pursue courses leading to the higher degrees. Others choose courses which qualify them for promotion to high-school positions. Others select lines of work which enable them to continue their chosen work more effectively.

Another important line of service which the municipal university renders to the city schools grows out of the necessity for a psychological clinic for the purpose of accurately determining the special school to which various typical pupils should be assigned. These pupils are brought to the psychological laboratory by their parents or teachers and are subjected to scientific mental and physical tests. As a result of the tests these pupils are placed at tasks within the range of their abilities, and suggestions are made as to the best method by which their defects are to be corrected. In this way the retarded pupil, from whatever cause, is separated from the regular class and given special treatment, to the mutual advantage of pupil and school. Where such work is undertaken by some one not connected with a city system of schools, he labors at a serious disadvantage. He does not feel at liberty to call upon the schools for the necessary data, and teachers are indifferent in regard to supplying it. Their suspicions are aroused because they are apt to think that they are under examination. Principals also are likely to take such a view and hesitate to permit investigations, the result of which may appear to their discredit. On the other hand, the expert investigator who is a part of the system is assured of generous welcome.

The possibilities here, as well as in the investigation of all other city school problems with a view to making school teaching and administration more scientific, are far greater than under any other

conditions. In a word, the municipal university is the only type of higher institution which can have adequate facilities for the scientific study of many of our most important school questions. With a sufficient staff of trained workers in this field, the value of the service which may be rendered to the city school system in this way is incalculable.

A college for teachers, therefore, is an indispensable bond of union between the municipal university and the city schools, and no "town and gown" conflict can seriously jeopardize the existence of a municipal university which duly recognizes its obligations to the city schools in the ways which we have pointed out.

A higher type of agency for the training of teachers for the city schools is made possible by the municipal university in cooperation with the city schools largely because this condition commands a higher type of worker in this field. It is impossible for any city to secure any large number of teachers having a preparation of the highest order without the establishment of a municipal university. On the other hand, where such a university is established, the arrangement which we have described for securing and maintaining a supply of teachers having superior preparation is brought about with an expenditure on the part of the board of education less in amount than would be necessary to maintain a first-class city normal school of the usual type.

Nearly all of the appointments to positions in the Cincinnati schools are now made from the preferred lists, and a majority of these are graduates from the local university, with professional training. There are now several hundred college graduates in the elementary schools. All occupying regular positions in the high schools are college graduates, a large number having master of arts degrees, and several being doctors of philosophy. At no distant date all teachers in the system will be college graduates, with professional training, or successful experience at the least.

The municipal university, therefore, best serves the city by serving the lower schools of the municipality. The lines of such service are many and important, but all of them bear fruit just in proportion as they bring about improvement in the teaching staff in these schools. In doing this the university is dependent upon the active cooperation and financial support of the city school authorities. With this gained, the highest type of professional training for teachers in city schools becomes possible. Broader scholarship as a foundation for such training can then supplant a lower order of scholarship and be a safeguard against a narrow pedantry. Instead of a model school for observation and practice, a whole system of real schools for this purpose then becomes available. Merit can then take the place of manipulation in securing appointment. Opportunities for growth

after appointment can then become manifold. Scientific research can then have a laboratory for separating truth from opinion, and individual differences in children can be duly respected. Vitalizing discussion can then prevent the dry rot of a deadening routine. These are the needs of the city schools, and these possibilities are a challenge of the city schools to the municipal university.

VI. CIVIC UNIVERSITIES IN GREAT BRITAIN.

By CHARLES A. COCKAYNE,
President of Toledo University (1910 to 1914).

At the beginning of the nineteenth century, Great Britain had only seven universities, and in all of them the scholastic traditions of a much earlier period prevailed. Within the last 83 years 11 new universities and 6 more or less independent university colleges have sprung into being as if by magic. Seven of the new universities were organized in one decade, the first of the twentieth century—Birmingham, Leeds, Liverpool, Sheffield, Bristol, the National University of Ireland, and the University of Belfast.

The creation of the new institutions was welcomed and encouraged by the less conservative educators of the old centers. In fact the success of the younger institutions is due in large measure to the fact that they were manned by men from Oxford and Cambridge who believed in extending the privileges of higher education. This attitude is typically expressed by Mark Pattison, a former rector of Lincoln College, Oxford. He said that the multiplication of exhibitions at Oxford—

> can never "extend" the university to a newer and lower class of English society. If this is to be done, the expensiveness must be attacked in its causes. Instead of subsidizing the poor student up to the level of our expenses, we ought to bring down the expenses to the level of the poor. It is idle to say we can not.

And again:

> Toward the meritorious working institutions for higher education which are rising up in our centers of population at Manchester, Liverpool, and Birmingham, fear, jealousy, or contempt are not the sentiments we can feel. Let us wish them all success in their efforts in the common cause, and give them sympathy, and, if in our power so to do, aid.

There was no misunderstanding as to the mission of the new institutions. They were to meet the practical need for trained citizens. But this keen realization of the need for education that should be practical was combined with the larger ideal of the professional educator, and this has saved the civic universities from pursuing courses too narrowly utilitarian. It is true that trade schools and mechanics' institutes were organized to meet an immediate need in the most direct way possible, but the universities were directed

by a loftier ideal. This university conception finds expression in the following words of Pattison:

> Mental enlargement we know to be self-valuable, not useful; but if it can be introduced to notice under color of being useful in life, so be it, so only it is introduced. The difficulty is to get the thing recognized at all by those who have it not. Cleverness, talent, skill, fluency, memory, all these are understood and rated in the market. A cultivated mind, just because it is above all price, is apt to be overlooked altogether. It argues some discernment, and a considerable degree of education, in a society in which such gifts are even appreciated as useful. And let it once establish itself, even under false pretenses, such is its marvelous ascendency, that, like refined manners, it will conquer and propagate and extend itself by sympathy, by imitation, above all by education.

With no prescribed formula to follow, the new civic universities have unanimously adopted this ideal. While they have sought to meet the general demand for instruction in technical subjects and the needs of local industries in particular, they have, in every instance, combined with this work instruction in the usual courses in the arts and letters. The provisions of the charter of the University of Liverpool may be taken as typical. According to this charter, it is the purpose of the university to offer—

(*a*) Instruction and teaching in every faculty.

(*b*) Such instruction in all branches of education as may enable students to become proficient in and qualify for degrees, diplomas, and certificates in arts, science, medicine, law, engineering, and all other branches of knowledge.

(*c*) Such instruction, whether theoretical, technical, artistic, or otherwise, as may may be of service to persons engaged in, or about to engage in, education, or in the commerce, manufactures, industrial or artistic pursuits of the city of Liverpool, and the adjacent counties and districts.

(*d*) Facilities for the prosecution of original research in arts, science, medicine, law, engineering, and all other branches of knowledge.

(*e*) Such fellowships, scholarships, exhibitions, prizes, and rewards, and pecuniary and other aids as shall facilitate or encourage proficiency in the subjects taught in the university, and also original research in all such subjects.

(*f*) Such extra university instruction and teaching as may be sanctioned by ordinances.

All of the civic universities have faculties of arts and of pure science, of engineering or applied science, and of medicine. Four of them have faculties of law, and several have faculties of music, commerce, theology, education, agriculture, and pharmacy. Most of the universities are coeducational, and most of them have evening as well as day courses. All of the universities carry on extension work. At Liverpool and Sheffield the extension work includes not only lectures, but also tutorial classes organized for the benefit of working people who can not attend regular university courses, but who wish to do systematic work in advanced subjects. At Sheffield tutorial classes have been organized in industrial history, economics, and philosophy. The largest branch of extension lecturing at Leeds has been in agriculture, horticulture, farriery, dairy work, and poultry

keeping. Under the supervision of the extension lecturers, demonstration gardens are kept.

Each university studies the needs of the city and county in which it is located and endeavors to meet these by offering appropriate courses. Thus, the university college at Nottingham provides courses in the manufacture of lace and hosiery; the University of Sheffield has developed a strong department in the metallurgy of iron and steel; and the University of Leeds has made a specialty of courses in subjects that pertain to the leather and textile industries and to dyeing. The influence of the civic university is not limited to the municipality, but extends to the surrounding counties, very much as an industry or business of a city will dominate the lesser centers in surrounding territory. It has been found that from 60 to 100 per cent of the students attending the civic universities come from within a radius of 30 miles of the institution. In return for this local service, each university receives financial support both from the municipality in which it is located and from the counties reached by the university.

Certain of the municipalities provide a number of free scholarships in their universities for their own residents, and grant additional funds for maintenance not to exceed £30 in each instance. The municipalities are authorized by law to fix a tax of 1 penny for university purposes, and in many cases this rate is granted. The local support given by cities and counties to their own civic universities varies from 5.1 per cent to 29.6 per cent of the total income of the institution. The largest local grant for the year 1910–11 was given to the University of Leeds and amounted to £16,460. As a rule, the parliamentary grants have exceeded those given by the local authorities, and have varied from 23.1 per cent to 40.3 per cent of the total income. Both Federal and local authorities are represented on the governing boards known as the Courts of Governors. Representation on the courts has also been extended to manufacturers or workingmen's associations which contribute toward the maintenance of the university.

Most of the universities maintain dormitories or hostels where the students may secure board and room at reasonable cost. Moreover, these dormitories afford opportunity for the promotion of a community life among the students, and this is regarded as a very important factor in fostering the larger influence of the university.

The tendency to form local independent universities in the larger cities was not without its opponents. When the Victoria University was formed at Manchester on the basis of Owens College, it admitted the University College of Liverpool and the Yorkshire College of Leeds as constituent colleges. Manchester had always desired to have its own university, but the organization of the Victoria Uni-

versity with constituent colleges in three different cities introduced the federal idea. The application of Birmingham in 1901 for a charter to create an independent local university out of the Mason University College revived interest in the movement to have an independent university at Manchester. A movement was also started in Liverpool to establish a local university independent of the Victoria University. This effort to dissolve the Victoria University was opposed by the college at Leeds. The vice chancellor of Leeds, Sir Nathan Bodington, addressing a meeting of the governors, said that he and many others felt—

> that the multiplication of universities would be detrimental to the best interests of education and that universities in separate towns would not be likely to acquire the dignity and prestige which a university with a local sphere corresponding to it would have, and would not be able to speak in all those matters on which the action of the university in reference to the State was becoming so important, such as inspection and examination of schools, with anything like the weight of an undivided university.

Fear was expressed that—

> with a great northern university, a great midland university, and a London university they would have strength in the future, but if, outside Oxford and Cambridge, they were going to have seven or eight new universities, nearly all of them connected with single cities, that, he thought, would be a cause of weakness to university movements of the future.

The dissolution occurred, however, and out of the Victoria University three independent civic universities were formed and were known as the Universities of Manchester, Liverpool, and Leeds. The effect of this action was that it stimulated local interest to an unusual degree, and the new civic universities thus formed continued to expand under the increased local support that was given. When asked five years later to give his opinion of the federal idea for English universities, Sir Nathan Bodington declared emphatically in favor of the civic plan.

With the establishment of the National University of Ireland in 1910 the Federal idea was again put into practice. The National University was formed with three constituent colleges, the University College, Dublin, and the Queen's Colleges of Cork and Galway. But already a demand has been made that these colleges be developed into independent local universities.

The civic university is the characteristic university of Great Britain to-day. If the movement now in process continues, it will not be many years before the university colleges now at Nottingham, Reading, Southampton, and Dundee; the three constituent colleges of the Universities of Wales, Aberystwyth, Bangor, and Cardiff; and the institutions at Dublin, Cork, Galway, and Belfast will be converted into independent civic universities. If it be asserted that

the civic or municipal university is still an experiment, it may be admitted that, so far as the precise sphere to be occupied by such an institution is concerned, there is much that remains problematical, but there can be no question as to their permanent existence. No further experiment is needed to establish the value and the practicability of the municipal university, but much remains to be done to develop all its possibilities as a factor in civic life.

The royal commission appointed to make an investigation of the University of London states in its report that:

> It is no accident that all the modern universities of England have been established in great centers of population. In these centers are practiced to a far greater extent than in rural areas those professions and callings for which the intellectual training given by a university has always been needed. In cities, moreover, many new occupations have developed which require a highly trained intelligence and which would find no scope apart from the manufacturing or commercial activities of the nation. * * * In the large cities of England the number of students qualified to undergo a university training and desirous of having it, if it can be provided at a moderate cost, has been relatively large, because the provision for secondary education, imperfect as it has been even there, is in many cases less deficient than in the country districts; and, finally, in the cities, where wealth is made and distributed and capital accumulated, it has been found easier to collect the large funds required for the foundation and maintenance of university institutions, in the absence of adequate financial support by the State. Many young men and women whose parents could not have afforded the cost of educating them at Oxford or Cambridge, have attended the classes and laboratories of the modern universities and have found in them either the general training or the special professional equipment which they needed for their work in after life. It has therefore naturally come about that the modern universities are situated in centers of dense population and that they have included technical and professional subjects in their curriculum to a far greater extent than the older universities. These are the facts that must necessarily affect the conception of the proper functions of a city university.

VII. THE MOVEMENT FOR THE MODERN CITY UNIVERSITY IN GERMANY.

By CHARLES W. DABNEY,
President of the University of Cincinnati.

On the 18th of October, 1914, the city university of Frankfort-on-the-Main was inaugurated with high ceremony. The German Kaiser, who had promised to be present, sent a letter explaining that only the exigencies of the war prevented him from taking part in the exercises celebrating a notable event in the history of higher education in Germany.

The inauguration of the new university of Frankfort is the first definite result of a campaign that has been going on in Germany during the last 10 years for a new type of higher educational institution with a curriculum more in keeping with the needs of modern life than that afforded by the orthodox German university, with which

we are familiar. Frankfort-on-the-Main, Hamburg, Dresden, Cologne, and Dusseldorf have established, or are contemplating the establishment of, such universities on broad lines; and institutions of similar character are also proposed in smaller cities, such as Posen, Altdorf, Wittenberg, and Helmstedt.

The city university proposed differs from the regular German university in two respects. In the first place, it is designed as a local institution supported from local funds, while the great German universities and technical universities (Technische Hochschulen) are State institutions financed and controlled by the States. In the second place, the new municipal university is organized primarily to meet the demands for higher technical and professional training by combining the technical work of the Hochschule and the academic work of the regular German university.

The existing technical universities, or Hochschulen, have been founded, financed, and controlled as State institutions. They originated early in the nineteenth century as trade schools, trade academies, and professional institutions designed primarily to furnish knowledge of handicraft and of the professions as distinct from the academic training furnished by the German universities. With the development, through invention, of the practical sciences, this type of institution came gradually to adopt the scientific point of view by applying generalizations from experience in practical fields to advance the knowledge of the arts and crafts. This change, which came about early in the last half of the century, was accompanied by a change in name from trade school to "polytechnicum" or polytechnical school. An important feature in the method of instruction in the polytechnical schools was the emphasis placed on cooperation of the instructors with the students, a method employed later in the universities. After a time it was found that knowledge obtained by generalizing information gathered from the storehouses of scientific and industrial achievement was adding very little that was new or helpful. Progress began to demand something more, and the polytechnical schools set to work to meet this new demand by well-aimed experiments designed to develop scientific knowledge through research. With the inauguration of the research method in the polytechnical schools, the term "Polytechnicum" came to be supplanted by the term "Technische Hochschule" (technical university).

At the same time that the foundation for technical knowledge in the practical pursuits of life has thus been laid by the technical universities, the feeling has been growing that students in these fields should be given an opportunity, while pursuing their scientific studies, to obtain a broader intellectual foundation than can be had in the preparatory training for their particular professions. It is thought that a direct union of the technical universities with the universities

proper will render this possible. For practical reasons, however, such a union is not considered feasible at the present time. Hence comes the demand for a new type of university that will combine the advantage of the technical school and the university, and will place proper emphasis upon, or, at least, give full consideration to, those branches of study that are indispensable to the needs of the daily life of the present age. It is a demand somewhat similar to that which has led to the establishment of the graduate schools of applied science of Harvard.

The recent movement toward the establishment of a municipal university at Frankfort-on-the-Main can best be understood by keeping in mind the development of the many municipal institutions created in that city during the eighteenth and nineteenth centuries to advance education in various scientific fields. The oldest of these is the city library, founded in 1668, and financed exclusively by the municipality and by private gifts. Later on, a medical institute was organized by Senckenberg at a time when the study of medicine was at a low ebb in the German universities. In 1763, this medical institute, the library, the natural history collection, the botanical gardens, the chemical laboratory, and the anatomical theater were all joined under the name of the Senckenberg Institute. Contrary to expectations, the new institute was not supported by public interest and for a time it was combined with the provincial university. This association, however, was discontinued in 1812 because of the refusal of the Government to uphold it. In spite of firm support tendered by Goethe and others, the institute was for a time on the verge of bankruptcy and barely managed to continue its existence. But the cause of education in Frankfort did not suffer seriously, for various other societies and associations were founded to carry on the work which should have fallen to the Senckenberg Institute. Among these may be mentioned the Polytechnical Society, an association for the advancement of applied and theoretical sciences, founded in 1816; the Senckenberg Natural History Society, founded in 1817; the Physical Club, established in 1824; and a new city library, established in the same year.

With the creation of the confederation in 1866 Frankfort ceased to be a capital city, and the loss of the political life thus transferred to Berlin was seriously felt. Through the presence of the "Bundestag" much information affecting banking and commercial life had been obtainable which had made Frankfort a very desirable location for men engaged in these pursuits. But with the withdrawal of the political center to Berlin, many bankers and commercial men followed, and the resulting depression in Frankfort commercial centers put a stop, for the time being, to all talk of a municipal university. To replace the loss in self-government, however. a "Hochschule" was founded in 1866.

Notwithstanding these reverses, industrial and commercial development in Frankfort, which was favorably situated as a center of transportation, demanded a continuation of professional training in the natural and applied sciences, and, through the generosity of wealthy citizens, the various institutions that had been created earlier in the century were strengthened by gifts and endowments. In 1881 the free German "Hochstift," established in 1859, was reorganized and enlarged. A city hospital and special clinics were erected in 1896, and in 1901 the city council, in cooperation with various associations, authorized yearly contributions to support an academy of social and commercial science. Finally, in 1903, a gift of 2,000,000 marks made possible the foundation of the "Carl Christian Jugel 'ache Stiftung" (Carl Christian Jugel Institute) as a general academic educational institute for instruction in history, philosophy, and the German language and literature. This institute was established in close connection with the Academy of Social and Commercial Sciences, thus combining instruction in the humanities with that in the practical fields.

A few years later the Physical Society and Senckenberg Natural History Society set forth the urgent need for new buildings for these institutions. It was decided to sell the old property and augment the funds thus raised by additional appropriations for the purpose of purchasing a new site and erecting new buildings. Thus began the movement which ultimately broadened to include the desirability of consolidating the various institutions supported by the city and by private gifts into a municipal university. The result was that on March 29, 1912, the city council duly authorized the establishment of the new university, the doors of which opened for instruction in the latter part of 1914. Although many of the German universities and technical schools are located in large cities, their support, as I have said, is derived from the State, and the members of their faculties are all State officials. The procedure in this case is, therefore, entirely without precedent in modern Germany, and Frankfort has the distinction of being the first German city to coordinate its educational institutions into a municipal university.

The municipal university of Frankfort thus established is to be known as the Goetiana-Senckenbergiana, in honor of the two noted citizens who advocated its cause in the early days. It consists of a federation of nine previously existing institutions, viz, the Academy of Social and Commercial Sciences, the Physical Club, Senckenberg Society, Senckenberg Foundation and Library, Rothschild Library, George Speyer Haus (Hospital), City Library, and Medical Institute and Clinics. Under the provisions of the charter, the city obligates itself to erect certain new buildings for the university and to furnish annual funds for its support. It is estimated that, for the operation

of the university, about 1,200,000 marks will be required annually, exclusive of hospital receipts, which amount to about 700,000 marks per year. The larger part of this sum has been obtained by endowments and gifts. Although the financial support of the university thus comes from the city, appointments to the faculty are to be made by the central authorities of Prussia. No provision is made for a theological faculty, in which respect the new institution violates the traditions of the German universities.

On December 20, 1912, the Senate of Hamburg proposed the establishment of a municipal university along the lines of the Frankfort institution. Being the gateway to Germany, Hamburg has for some time realized the intimate connection between her own prosperity and German communication with the outside world, particularly with the German colonies. In 1908 a Colonial Institute was founded to develop technically trained experts in colonial administration. It is now proposed to make the Colonial Institute the nucleus of a municipal university in which there shall be three faculties, philosophical, natural science, and juridical. From the professors of these faculties there is to be formed another faculty of colonial science. Donations, with a total capitalization of 25,000,000 marks have been obtained for the new institution which is to be under the management and control of the municipality. Owing to an adverse note in the "Buergerschaft," the progress of the plan has, for a time, been halted.

Dresden, for a number of years, has had a technical university (Technische Hochschule) as well as a veterinary college. Recently, owing to an urgent need for an extension of the veterinary college, a plan was proposed to remove it to Leipzig, where its students would be able, at the same time, to attend lectures of the medical college faculty. Dresden, however, was reluctant to give up the institution, and to prevent the loss the Dresden News on June 9, 1912, proposed the establishment of a municipal university of which the veterinary school should be made an integral part. According to the plan outlined, seven distinct faculties are to be created, three of which, to be divided into five departments, would comprise the technical university. The remaining four faculties—philosophical, juridical, medical, and veterinary science—will constitute the university proper. Valuable land sites and funds aggregating $4,500,000 have been obtained for the new institution. It has also been proposed that the Academy of Mining of Freiberg and the Academy of Forestry of Tharaudt, which are now under the management and control of the State of Saxony, be later combined with the university.

In the autumn of 1911 Dusseldorf established, in connection with its commercial university, a university for municipal and social administration. For a number of years municipal administration has been recognized in Germany as a distinct branch of modern

political science. The primary function of the new institution at Dusseldorf is to instruct municipal officials in the technique of city administration. The institution was opened on October 30, 1911. Courses of study consist of two semesters of three months' lecture periods each, at the end of which the student undergoes an examination for graduation. The courses cover all phases of municipal law, city organization, charters, and city problems, such as labor questions, poor relief, public sanitation, etc. In some instances lectures are accompanied by actual practice. The lecturers are acknowledged authorities in their fields, many of them being burgermeisters of large cities. Graduates of the "gymnasium" or "real-gymnasium" of the first class are admitted. The institution is under the complete control of the city.

Many other cities of Germany have, within the past 15 years, founded educational institutions for the training of students in social, economic, and scientific professions. Cologne has established, in connection with a commercial university, a university for social and municipal administration with functions similar to those of the Dusseldorf institution. The course of study comprises at least one winter and one summer term. For a number of years several cities, including Berlin, have had training schools for employees of certain departments of the city government, such as police and various other departments of lower rank. Berlin has a college for saleswomen in stores; Dusseldorf is contemplating an academy for the hotel sciences; and other cities in Germany are planning municipal schools of journalism.

The municipal university appears thus to be developing in Germany in a perfectly normal way, that is, out of the need of the cities to train higher technical experts for their own service.

PART II. BRIEF DESCRIPTION OF TYPICAL URBAN UNIVERSITIES.

I. MUNICIPAL UNIVERSITY OF AKRON.

By PARKE R. KOLBE, *President.*

The nucleus for the Municipal University of Akron, which began its official existence on January 1, 1914, was Buchtel College, an institution of higher learning founded under the joint auspices of an Akron citizen, John R. Buchtel, and of the Ohio Universalist Convention in the year 1870 (chartered May 31, 1870).

Statistics given in the catalogues of earlier years show that Buchtel at first drew her students largely from denominational sources, but the rapid multiplication of educational institutions in all parts of the

country gradually brought about at Buchtel, as well as elsewhere, a falling off in the number of foreign students and a corresponding increase in local attendance.

While the character of the student body was thus gradually changing from a denominational to a local predominance the financial condition of the institution was far from encouraging. Denominational support had almost entirely ceased during the last decade. At the same time the people of Akron had never come to look upon the college as entirely theirs; hence ample support from local sources was also denied. Meanwhile the constant and steady increase in the number of local students rendered the necessary financing of the college budget a more and more difficult problem for the trustees and the president to solve.

At a meeting of the Buchtel trustees, held on April 14, 1913, a proposition was laid before the board to turn over to the city of Akron the entire plant and endowment of the college, with the proviso that the purposes of all original bequests be carried out and the college be supported and administered by the city in accordance with the provisions of the State code. On August 25, 1913, the council of the city of Akron unanimously accepted by ordinance the offer of the trustees of Buchtel College and established the Municipal University. The final transfer was executed on December 15, 1913.

In organization the University of Akron very frankly copied the methods of the University of Cincinnati and accepted aid from the University of Cincinnati not only in methods but also in securing from it one or two competent men for carrying out certain of the work planned.

When the institution was turned over to the city it consisted simply of a liberal arts college. The liberal arts college has been kept intact and enlarged to a considerable extent. There are two new schools. One is the college of engineering, on the cooperative plan, as introduced by Dean Schneider, of Cincinnati; and Prof. Ayer, who had been at Cincinnati for eight years, became dean of this college.

A school for home economics has been started—the regular four years' course—with the regular 15 units entrance requirement in force. The beginning class contained 20 women.

The students come very largely from the city itself. Out of 100 high-school graduates in the city of Akron who entered college for the first time this fall 75 went to the city university.

The university is also trying to cooperate in various ways with the city departments. The city's chemical and physical testing and also the bacteriological testing for the board of health have been taken over.

The department of political science and sociology is doing some cooperation with the board of health and the charity organization

society. We have our students working under the supervision of these two bodies and with the departments in various activities in the city; for instance, in making housing surveys, etc.

No attempt is made to do graduate work of any kind. One of the fields now in prospect is that of training for public service. The details have not been worked out, but we hope to do it by a cooperative plan. The first three years will be very largely regular college work, followed by a year in cooperation with the departments—possibly half a day in college and half a day in regular work in the city departments. In the fifth year it is proposed to put students into graduate work in the bureau of municipal research, so that men can be turned out who will know something about city government.

It is also hoped to get into closer touch with the public-school system. Under the present laws of the State of Ohio the graduates of any college that does not have a department of education can not receive State teachers' certificates. The plan is to cooperate with the city normal school and establish a closer relation with it, so that the students can go back and forth from one institution to the other and in the prescribed time do the necessary work for the teacher's certificate.

II. NEW YORK UNIVERSITY, NEW YORK, N. Y.

By JEREMIAH W. JENKS.

Many members of the faculty of New York University have made special investigations for the city. The school of pedagogy is now conducting a special course for training teachers to deal with defective children.

Plans for a more systematic cooperation have been worked out between the city government and the university. One plan provides classes for municipal employees along the lines of their special work in the city departments, in order that they may become more efficient and in consequence receive promotion sooner. These courses were started this fall. They are conducted in the municipal building. With one exception they are held from 4 to 6 p. m. The employees' work closes at 5 p. m., so that one hour is on city time and one hour on that of the employees. The university gives for this work its best teachers. For example, there are two courses in accounting. The head of the accounting department conducts these courses, and his most experienced assistant the other. In business English the head of the English department is in charge. A course on the government of the City of New York is given by a city employee, himself a highly-trained man with large experience in the city government.

There are now 246 city employees taking these courses. The registration is 279, because some men have registered for more than one course. No one is permitted to enter these classes without the

approval of the head of his department, and he is in certain cases very properly averse to having men take more than one course. The comptroller objected to having any of the city time taken; a special course was arranged for his employees from 5 to 7 p. m. The class in business English numbers 57; secretarial duties, 58; bookkeeping, 49; of the two accounting classes one has 20 members, the other 18; government of the city of New York, 36; elementary statistics, 18. Men who are equipped for entering the university may get university credit if they pass the examination; those who could not enter are not permitted to get university credit. For example, bookkeeping is understood to be introductory to accounting. Candidates for the course in accounting were given a preliminary examination in bookkeeping. More than half were rejected. They were told that they must take bookkeeping before they would be admitted to the class in accounting. Some took up the course in bookkeeping; others dropped out.

The second line of cooperation consists of special investigations on matters of interest to the city by graduate students. This plan has just been started. The graduate seminary holds its meetings in the municipal building, where one of the best men in the office of the commissioner of accounts, whose work brings him in touch with all the city departments, is able to give the graduate students access to records.

This year some amendments to the charter are needed; therefore, these investigations are practically all studies of suggested charter amendments. One man is making a special study of the work of the chamberlain's office to get facts by which to judge a suggested amendment to the charter. Another has already worked out the question of an employees' conference with representatives of department heads. Special investigation has been made of the plans of private establishments and a suggestion to adopt a similar system in New York City has already met with the approval of some of the members of the city government.

The university also established last year what is called a "Government House." The idea was to provide some way by which graduate students could come into immediate touch with work of a nonpartisan political nature, that should have its direct influence upon the young men of the city. A number of graduate students room and board in the Government House. There is held in that building once a week a class with which the director of the house discusses in a practical way the details of city administration. Each one of the students in this class also holds a club meeting in the city once a week. There are some 25 clubs now organized in different parts of the city. The graduate student, as teacher of a club, instructs the young men. Practically all of these club members are

young voters; some of them are immigrants. There are two clubs made up of young Italians, for example, studying city government, in order that they may get the idea of the actual working of the city government and the way in which it ought to work. One of these clubs is organized in a church for the study of city government among the young people and others who wish to come into the "forum." Several of these clubs are held in the public school buildings that are treated as social centers. The university was invited to take charge of the entire social center work for this year, but not enough men of the right type are available for the work.

Several clubs are held in settlements, and some have been organized outside. One last year was made up largely of young gang leaders who had been devoting a good part of their nights to mischief. Those men were in the first place interested in an athletic club which we put into a gymnasium in a public school. Then it was suggested that they might organize a civic club for the study of city government.

The Government House does much besides conducting these classes. It has a municipal research laboratory and a municipal reference bureau, to which citizens come to make inquiries about their rights and obligations as citizens. The city government has furnished special charts that may be helpful; and city officials give lectures before the classes and give practical suggestions to teachers. The Government House also makes special investigations for people in the city who want to know about matters of public interest. For example, a special survey was made by Government House as to the need for a proposed park and its location. An adverse recommendation was made. Many similar matters are taken up which involve special research work in city problems.

The instruction in the special municipal courses costs the city nothing. The university carries the cost of administration. The classes for city employees are charged a fee, $20 for a two-hour session once a week throughout the university year, that pays the teachers. This fee is somewhat less than is charged in the School of Commerce. Since the city furnishes room, lights, janitor service, and so on, the courses ought to be given somewhat more cheaply. But the teaching is paid for by the students themselves.

III. UNIVERSITY OF PITTSBURGH, PITTSBURGH, PA.

By S. B. Linhart.

The University of Pittsburgh is not a municipal university, although it has received appropriations from the city for the improvement of the university grounds, and both in theory and practice is thoroughly committed to the principle of cooperation.

The student in the school of engineering spends one term of 11 weeks out of each year in practical work in some manufacturing establishment in the Pittsburgh district. Thus by the end of his four years' course he has had one year of practical experience in mills or factories. In the department of sanitary engineering, students work in the department of health of the city. Graduate work is offered in the evening course in the school of engineering to engineers wishing to continue their studies or take up some special problem of their profession.

The school of mines sends an instructor from the university to mining towns in western Pennsylvania to meet evening classes of men engaged in mining, preparing them especially to take the examinations for positions as mine foremen.

The school of economics, through its various departments, keeps in touch with the associated charities and other social and relief organizations in the city. Students are assigned to practical work in connection with a number of settlements and clubs.

The evening school of economics, planned in general on the same basis as the work in New York University and Wharton School of the University of Pennsylvania, brings together large numbers of young men, over 600 this year, for instruction in business law, insurance, real estate, Spanish, accounting, etc. The educational work of the Pittsburgh chapter of the American Institute of Banking has been conducted this year by the faculty of the evening school of economics.

In the school of education students have practice teaching in the schools under the supervision of the faculty of the school of education. Over 500 teachers are enrolled in this school, fitting themselves to meet the requirements of the new Pennsylvania school code.

A very interesting form of cooperation established at the University of Pittsburgh is the work of the Mellon Institute of Industrial Research. Fellowships are established by corporations or firms desiring to have some problem investigated. The research is carried on under the general direction of the director and the holder of the fellowship who has been selected to carry on the investigation of this particular problem. Problems of general industrial welfare and importance are also the subject of research. One of these, which has attracted general interest, was the investigation of the smoke problem. The results have been published and are in constant demand.

The schools of medicine and dentistry are rendering efficient service to the community in assisting to care for the health and general public as well as for other individuals. A part of the bacteriological work for the hospitals of Pittsburgh is done by the school of medi-

cine. The dental clinic renders free service to many thousands each year.

The Allegheny Observatory is also doing very important and helpful kind of cooperative work. By means of a special fund it is possible to keep the observatory open now practically every evening in the week for a large part of the year, and those who visit the observatory are not only permitted to look through the telescope, but they are also given instructive lectures in the auditorium of the new building of the observatory. Many avail themselves of this privilege. This work is one of the most useful and helpful forms of cooperation employed by the university.

IV. BOSTON UNIVERSITY, BOSTON, MASS.

By EVERETT W. LORD, Dean.

Boston University has no official connection with the city or State. It is a privately supported institution, and only within recent years has it begun to do any work outside of that included in the traditional college courses. But especially with the coming of President Murlin, three or four years ago, there began to be a realization of the special opportunities afforded the university to some extent by the city environment. Before that time a little had been done along the line of extension work, especially for public-school teachers, college courses being given on Saturdays and late afternoons. That work was so successful and was so well supported by the teachers and the city school department that from it was developed the university-extension work which is now carried on in Boston by a commission representing the various educational institutions in the city and its suburbs—Harvard, Tufts, Massachusetts Institute of Technology, Wellesley, Simmons, and Boston University. Nearly all of those university-extension courses are given at Boston University because of its central location.

It was impressed upon some of the trustees not long ago that it was little short of a business crime to allow the valuable buildings of the university to remain unused a large part of the time, and as an outgrowth of that idea more extension work of different kinds was undertaken. Lecture courses were arranged and the various departments attempted to reach their different constituencies. The theological school, for example, began to reach out and take a new interest in the local Sunday schools and churches. The faculty organized courses for training Sunday-school teachers, and that school has now what is thought to be the only department in the United States especially devoted to that work. They have a regular course in the school and have something like two or three hundred

outside students taking special work. The medical school is giving courses of public evening lectures in preventive medicine. These lectures have been very popular and have resulted in great good. The college of liberal arts has continued and extended the teachers' courses.

Largely influenced by the work at New York and Northwestern's experiment in Chicago, a college of business administration was organized in 1913, with evening courses, and it appears to be developing satisfactorily. The number of students has increased this year very largely over last year. Some difficulty was experienced in finding proper teachers for these courses, but there has been developed in this short time a number of men who are good business men and good teachers.

The attitude of the college of liberal arts faculty toward this new department was interesting. At first some of them looked upon the thing as being altogether unacademic, and considered the suggestion that credit for some of the courses be given toward an A. B. as little short of sacrilege. But before the end of the first year, when they saw the serious nature of the work done and the type of students in attendance, they changed their minds and voted to allow academic credit for about half of the evening courses. They allow students in the college of liberal arts to take those subjects as part of their A. B. course, and it looks now as if a scheme of cooperation could be worked out between those two departments by which we shall be able soon to offer nearly all of the regular college courses in the evening as electives for our business-administration students (a large part of their work being required, but some elective), while special students may take these college courses if they wish and get regular college credit for them. There seems to be no reason why any course which is good for day students should not be made available for those who can come only in the evening. As there is in greater Boston a population of a million and a half to serve, there seems to be a sufficient field for this type of extension work.

Little direct work in connection with the city government has been done as yet. Not all city officials look with favor upon the idea of having college professors come in and tell them how to conduct their business. One of the professors in the university has prepared a financial history of Boston, from the earliest date to the present, which will shortly be published, and which will cast some light on matters of general as well as local city administration.

In general the university's work has been that of making available the opportunities offered to day students for those who are unable to attend during the day; and while there will undoubtedly be other developments, this is likely to remain of special concern.

V. UNIVERSITY OF BUFFALO, BUFFALO, N. Y.

By CHARLES P. NORTON, Chancellor.

The University of Buffalo has four schools—medicine, law, dentistry, and pharmacy. They are schools without endowment. They depend upon their teaching fees to pay for a few men to attend to the routine of the school. They came into being through the efforts of these professions to put within the reach of the young men and women of the neighborhood instruction upon the subjects to which they relate.

Buffalo has a special problem. There is in Buffalo a colony of Italians of 50,000; a colony of Polish people of 60,000; and colonies of Germans, Irish, and Hungarians. They have all come to Buffalo since the city became a railroad center 30 years ago; with this huge mass of foreigners, the city has begun its work in the schools. There are 75,000 children in the schools, and 25,000 or 30,000 children in the parochial schools, and about 200,000 people in the neighborhood of Buffalo, the counties and towns and villages of which Buffalo is the metropolitan city.

For 10 years Buffalo has been struggling for a municipal college, a college that shall be of use to the city, to bring together and to teach city life, city government, and above all Americanism to these people whose children have come to our public schools, and whom the university is trying to weld together and mold into American citizens. The University of Buffalo is attempting to provide the benefits of higher education to these people.

VI. JOHN HOPKINS UNIVERSITY, BALTIMORE, MD.

By EDWARD F. BUCHNER.

From its beginning the Johns Hopkins University has had the cooperative spirit; its career has been marked by interest in community problems. The first item on the list of connections with the community is the action of the trustees in placing the plant at the service of public and private organizations as a center for meetings.

More significant is the community service which has been rendered throughout the years by public lectures, singly and in courses. These have been maintained at university expense, and opened freely to the public. It is impossible to indicate the support of this service in terms of university moneys or of special departmental funds which are expended for this purpose.

In 1909 a distinct effort to serve the community by instruction appeared in the organization of the college courses for teachers. In response to the needs of the local situation, the university, in cooperation with Goucher College, provided regular collegiate instruction to nonmatriculated students, who by reason of professional or voca-

tional activity would be unable to attend morning classes. The designation of these courses, which are given in the afternoons from 4 to 6 o'clock and on Saturday forenoons, indicates that the social pressure came primarily from the school systems of the city and State. The academic difficulty of admitting women to candidacy for the degree of bachelor of arts in the university led to the cooperation with Goucher College. The university assumes the entire financial responsibility. These are not "extension" courses, as this term is ordinarily used. They are in most instances a repetition of the regular courses in collegiate subjects given in the morning to matriculated students. Although originally arranged for those engaged in teaching, the registration of nearly 175 persons includes individuals who are engaged in many other occupations.

These courses are also collegiate in that the successful completion of them receives recorded credit toward the degree of bachelor of arts. The equivalent of the first three years of a college course may be accomplished by this means. These credits are accepted in the case of women by Goucher College and in the case of men by the collegiate department of the university when matriculation requirements are satisfied. Another striking feature of these courses is to be found in the number of hours of class attendance. The standard three or four hour course for the undergraduate is organized as a two or three hour course, respectively. It was believed at the beginning, and it has since been found to be true, that those engaged in vocational and professional activites, while having less time at their command for study, would be more mature, methodical, and intensive in the pursuit of the work, and thus the usual requirements of the college courses would by the end of the year be achieved. There was considerable doubt as to the academic practicability of the plan proposed. The five years' experience has removed this doubt entirely. There is now no question as to the academic value of the work that is accomplished.

These courses are this year giving evidence of new possibilities in the extension of instruction to meet the needs of the community in hygiene and economics.

Another form of academic adjustment in order to extend the community values of instruction has been made in connection with the graduate school. When the college courses for teachers were organized, providing opportunities for those who did not possess collegiate training, it was recognized that the university was under equal obligation to provide facilities for those college graduates in the community who were also engaged in teaching. This problem was readily solved through the very simple method of adjusting the schedule of graduate courses. There are now some 17 subjects in which one or more graduate courses are available in the afternoons or on Saturdays. This work is done without a cent of cost to the university, and it is

gratifying to see an increasing number of men and women who are coming as part-time students in advanced work. Some of these are accepted as candidates for advanced degrees.

The last effort the university has made to offer organized instruction to meet some of the varied needs of the community (as well as distant communities) appears in the six weeks' session of the summer courses, which began in 1911. This, too, was undertaken in response to the social pressure from the outside. The city and the State superintendents of schools had been asking for a period of years that the university offer opportunities for summer study. The summer courses cover the usual range of subjects. While the city and State teachers continue to be the majority of the students in the summer, it is noteworthy that an increasing number of representatives from at least a dozen other occupations are in attendance.

As to other forms of social service at the university, it is impossible to describe them at length. The medical school, for example, is doing much in this direction. The Phipps Psychiatric Clinic is cooperating with public schools, as well as with some other forms of social work. The late Dr. Huey was one of our workers in the field of feeble-minded and backward children. In addition to his service in the dispensary of this clinic, he gave a course of public lectures to teachers and others on the problem of feeble-minded and backward children, which attracted large audiences. His death last December necessarily changed the plans for continuing this work which Dr. Meyer, the director, has at heart. The clinic has recently completed an important piece of work in a local social and health survey, and is in cooperation with the open-air classes of a public school in the same district. There is also connection between the clinic and a special class of ungraded children in the public schools.

From the financial point of view, it is rather a serious problem with the university, since it is a private institution, how far it is free to utilize its general funds for anything beyond its definite work of instruction and research. Every deficit which has occurred in the earlier special lecture courses, or occurs now in the college courses for teachers or in the summer courses, has been met by appropriations by the trustees, and to this extent the university's financial resources are available for the extension of its educational activities in discharging its great obligations to the community.

VII. TOLEDO UNIVERSITY.

By A. Monroe Stowe, President.

The first of the lines of work of Toledo University to be mentioned is the public service bureau. This was organized with two objects in view: First, to discover the opportunities which the university may

utilize in rendering most effective service to the city; second, the advantages or opportunities that the city may offer to the university in performing this service most effectively. Through this public service bureau information is secured which will enable the university to utilize funds to the best advantage, for the university can not do everything on the modest income which it now receives.

A second line of work is the organization of a college of arts and sciences. Such a college of a municipal university has a distinct message and mission with respect to the young people of the city. The term of four years is a long stretch for some of the young people of the city to look forward to in the way of pursuing a course of instruction; hence the college is divided into two—a junior and a senior. The junior college work is almost entirely a required course, and the question that each subject has to answer to be placed on the required list is: To what extent will it directly contribute to increasing the social and civic efficiency of the students? The required courses of study which have been agreed upon by the faculty are as follows:

PROGRAM OF REQUIRED COURSES FOR TOLEDO UNIVERSITY JUNIOR COLLEGE STUDENTS.

FRESHMAN YEAR.

Education A. College Students, or the Principles of Human Behavior; credit 3 hours.

Education B. College Life; credit, 2 hours.

English Language A and B. Total credit, 5 hours.

English Literature A and B. Modern American and English Literature; total credit, 5 hours.

Sociology A and B. Problems of Modern Social Life; total credit, 5 hours.

History A and B. Modern History; total credit, 5 hours.

Economics A. Credit, 2 hours.

Political Science B. Modern Problems of State and City Governments; credit, 3 hours.

Physical Training A and B. Total credit, 2 hours.

SOPHOMORE YEAR.

Either—

Physics A. Physics of Every Day Life; credit, 3 hours.

As the name indicates, the aim of this course is to help you discover the laws and principles of physics, a knowledge of which will enable you to understand many important phases of your complex physical environment.

Or—

Chemistry A. Chemistry of Every Day Life; credit, 3 hours.

The aim of this course is similar to that of Physics A, except that in this case it is a vital and practical knowledge of the science of chemistry that the course develops.

Physiology and Hygiene B. Preventive Measures; credit, 3 hours.

We are to-day preventing, rather than curing diseases. We study how the body works, and what we must do to make it work with ease and not dis-ease. Most of our physical troubles can be prevented if we know in time. This course teaches what to do and why we do it.

Foreign Languages A. Foreign Life Studies; credit, 3 hours.

Each foreign-language department offers a course devoted to a study of the most important phases of the life of the people whose language the department teaches. Students will be at liberty to choose which of these courses they desire to take.

The course, however, is not required of students who continue the study of a foreign language.

Philosophy A. Modern Logic; credit, 3 hours.

We all admire the logical thinker, who is in demand in all lines of work. Most of us tend not only to make serious mistakes in our thinking, but also to be misled by fallacies of others who intentionlly and unintentionally mislead us. It is the aim of this course to help you discover and incorporate in your own thinking the principles underlying efficient thinking as well as to acquaint you with the mistakes and errors most commonly made in our thinking.

The course is not required of students who have completed or are completing a year's work in college mathematics.

Physical Training A and B. Course A and B continued. Total credit, 2 hours.

Electives. From 5 to 8 hours each semester.

Electives are chosen from courses offered either in the senior college of arts and sciences or in the college of industrial science. (See catalogue of the university.)

Some of the junior colleges connected with our high schools may find some suggestions from the required course of study just presented which will enable them to give a more vital course than some of them seem to be putting in when they incorporate in their curriculum the first two years of the old-line college.

In the senior college—and this is the third line of work to be mentioned—the requirements are a junior-college arts diploma and a major of 18 hours and two minors of 12 hours. The characteristic of the major is, briefly, this: That the individual, in addition to doing the 18 hours of work, shall perform some task or service for the municipality, so that everyone who secures the bachelor of arts degree from Toledo University will have performed, in the departments in which he majors, some service for the municipality or some task in which he has utilized his knowledge in the service of some section of the city.

VIII. MILLIKEN UNIVERSITY, DECATUR, ILL.

By GEORGE E. FELLOWS, President.

Milliken University is in a city, not a big one, but it has big ways. It has between forty and fifty thousand people, but it has so many railroads and so many large industries, railroad shops, etc., that the opportunities for cooperation with the city institutions are much greater than would appear from the size of the city itself.

The university had, until lately, made no special effort to cooperate with the city in any of its functions or facilities. The idea is a new one, and what is here said about the work of the university is chiefly for the future.

A few things have been done in Decatur, Ill., to show the good will of the university and to get the interest of the community. Coop-

erative engineering work began this year. Freshmen in the engineering department are on the cooperative plan—two weeks in the shops and two weeks in the college classes.

The cooperation between the city public school system and the university's department of education has begun to be well defined, so that students who are candidates for degrees have opportunity for certain practice work in the schools, and the schools avail themselves of advanced students to give some technical instruction.

The university had some night classes. There are Saturday classes, and lines are laid for distinctive cooperation with all of the city departments where it is possible. An attempt is made not to go so far as to antagonize any one, but if possible to show that the university is ready to be useful and expects to be asked for its services.

Even though the institution is not on a tax foundation and is not supported by the city, it was partially founded by the city. The city raised one-third of the original endowment to establish the institution 10 or 12 years ago, and up to the present time it has not taken so much of an interest as it might have been warranted in taking on account of its original subscription. The temper of the citizens is becoming such, however, that they mean hereafter to see that they do take an interest in its affairs.

IX. WASHINGTON UNIVERSITY, ST. LOUIS, MO.

By W. F GEPHART, Professor of Economics.

The work of Washington University of a distinctly public character may be grouped under the following heads:

(*a*) That connected with the medical school. Its extensive hospitals, with their free clinics, render a very wide and high-grade service to the public. Recently a plan of cooperation with the city hospitals has been arranged by which among other things the medical school nominates one-third of the staff for the city hospitals. In many other ways the instructional force of the medical school serve the people of St. Louis.

(*b*) The School of Social Economy. This is a professional school for the training of social workers. Not only are the regular students given training, but the many persons engaged in practical work of philanthropy, social settlements, etc., are aided in many ways. The graduate students of this school investigate social problems of interest to the city which fall within this field.

(*c*) The Henry Shaw School of Botany. This school was by its founder made a place where the people might enjoy the beauties of a botanical garden. While the school is a graduate school in its regular instruction, it gives an indirect and great service to the public.

(*d*) Extension courses. For many years special Saturday courses and a limited number of other courses, given at convenient times, have been offered by the university. These courses are attended by teachers in the public schools and others who either can not attend the regular courses or who desire to become more intelligently informed on certain subjects. This work is being developed as rapidly as conditions seem to warrant.

(*e*) Public lectures. In addition to two regular courses of lectures which are given for the public a great many lectures are given to various organizations by members of the faculty. Probably not a week passes without several members of the faculty giving public lectures.

(*f*) Work of a special investigative character, such, for example, as is conducted by the graduate students in the department of economics or by the school of social economy. Such studies as the following have been made: An investigation of the markets of St. Louis; a study of the finances of St. Louis; a study of the Negro in St. Louis.

(*g*) Services of many members of the faculty on various committees of the many civic organizations. These faculty members usually direct the work of the committee.

X. UNIVERSITY OF CINCINNATI.

By CHARLES W. DABNEY, *President.*

The work of the University of Cincinnati may be divided into teaching and public service. The instructional service of the institution is planned to meet the needs of a special student body and of the teachers in the schools and all persons seeking help in study and investigation. The economic position of the students is significant. A study of the financial condition of their families shows that 61 per cent of the students can not afford to go away to college. The university is thus educating each year at least 1,000 students who could not otherwise get an education. Eighty-five per cent of the men earn a part of their support each year and 30 per cent of the women. One of the excellent results of the cooperative system, in which a student devotes half of his time to actual practice in the shops, is that the wages received pay almost all the student's living expenses. But even the man who works during the day is not thereby debarred from an education, since both the college of liberal arts and the college of commerce offer evening courses leading to regular university degrees, and late afternoon sessions are given for his benefit. Six hundred students are enrolled in these evening and external courses. The total registration in the university to-day is 2,208, an increase of 302 per cent over that of 1904.

UNIVERSITY OF CINCINNATI
ORGANIZATION
AND
STATIONS OF CO-OPERATIVE WORK.
A TOTAL OF 95 STATIONS
DEPARTMENTS OF THE UNIVERSITY
Students 1914
THE McMICKEN COLLEGE OF LIBERAL ARTS 1204
including
Evening and External Classes
THE GRADUATE SCHOOL 174
THE COLLEGE FOR TEACHERS 289
Elementary and High School Teachers' Courses
Normal Art Teachers' Course
Kindergarten Teachers Course
THE COLLEGE OF MEDICINE 61
And The Clinical and Pathological School of the City Hospital 40
THE COLLEGE OF ENGINEERING 409
Co-operative Courses
Regular Courses
THE COLLEGE OF COMMERCE 104
THE DEPARTMENT OF HOUSEHOLD ECONOMICS 67
THE ASTRONOMICAL OBSERVATORY
THE LIBRARY
THE GYMNASIUM
Total Number of Students Duplicates Eliminated 2078
THE LIBERAL ARTS COLLEGE
DEPARTMENT OF POLITICAL SCIENCE
DEPARTMENT OF SOCIAL SCIENCE
DEPARTMENT OF BIOLOGY
THE COLLEGE OF MEDICINE
THE ENGINEERING COLLEGE
THE OBSERVATORY
THE COLLEGE OF COMMERCE
Co-operates with the Commercial Interests of the City
THE DEPARTMENT OF HOUSEHOLD ECONOMICS
Co-operates with The Public Schools and conducts The University Dining Room
THE COLLEGE FOR TEACHERS
Co-operates with The Superintendent of Schools in supervision, appointment, and promotion of teachers
The High Schools in the training of teachers
The Oakley, Hyde, and Walnut Hills Districts Schools in the training of elementary teachers
The Hughes School and Hughes High School in the training of teachers
The Kindergarten Training School in training kindergartners
The Art Academy in training Art teachers
The Cincinnati Public Library
Hospital
University
CITY OF
CINCINNATI
OHIO
AND VICINITY

Important as is its educational service, the service of the university in cooperation is even more striking. Each of the eight colleges of the university is engaged in this kind of work to some degree. The college of liberal arts serves the city through several of its departments. The department of biology conducts the bird reserve, has charge of school gardening, and cooperates with the zoological garden. The department of psychology trains school psychologists, prepares teachers for special schools, and does systematic research work. Its practical work is devoted to the diagnosis of the nature of the mental deficiency of backward school children, and it also cooperates with teachers in the special schools for defectives in the arrangement of courses, methods, etc.

The department of social science cooperates in social service with many public and private institutions. It assists the juvenile court in providing volunteer officers; the department of charities and correction, the house of refuge, and the associated charities, in investigations; the antituberculosis league and the juvenile protective association, in surveys; the Union Bethel and the Settlements, in investigations and club work; and the Council of Social Agencies, in surveys and rehabilitation.

One of the most important services rendered the city government is the maintenance, by the political science department, of a municipal reference bureau in the city hall. Every department of the city must know what similar departments are doing in other cities, what policies have been followed successfully elsewhere, and what the results have been. Council needs similar information for its work. The municipal reference bureau collects this information for council and all the departments, and thus what is secured for one is available for all. It focuses light from all possible sources on all possible subjects, and is, in short, a clearing house of municipal information.

The college for teachers uses the public-school system for the training of students, and cooperates with the superintendent of schools in the inspection, appointment, and promotion of teachers, in the arrangement of plans and methods, and in investigations and reports.

Students of household arts, preparing for positions as managers of lunch and tea rooms, find practice work in conducting the university lunch room, and those studying institutional housekeeping and dietetics do cooperative work in the Cincinnati General Hospital.

The engineering college conducts a city testing bureau, which examines, analyzes, tests, and evaluates all materials and supplies for use by the city departments. This college also cooperates in teaching and training students, and in research with 68 institutions and industrial companies, including the city engineering, water works, street, sewer, and bridge departments.

The observatory furnishes accurate time to schools, banks, railroads, the traction company, jewelers, etc. It provides magnetic

declination and geographical coordinates to engineers and surveyors, and also cooperates with the city sewer survey and furnishes the azimuth line.

The college of commerce, during the past year, cooperated with the chamber of commerce in making an industrial survey, and with the banks of Cincinnati in collecting statistics and reports.

The graduate school is not less potent in true work. It promotes scholarly research throughout the city, strengthening the teaching and other professions. It has trained many teachers for the high schools and the private schools of the city and vicinity.

The medical college is connected with the Cincinnati General Hospital and five other hospitals, where the faculty have charge of the surgical and medical work. It conducts a free dispensary, at which 21,000 cases were treated last year. The children's clinic of the college maintains a number of milk-supply stations and sends nurses to the homes to train the mothers in the care of their infants. The orthopedic dispensary treats the crippled and deformed, and assistance is given poor patients in securing braces and other instruments by which they may be returned to activity and thus enabled to earn a living.

A unique feature is the endowment fund association. It is a private corporation, not for profit, made up of 69 of the leading citizens of Cincinnati, and its sole object is to collect funds and property for the university. The method pursued is, through the medium of the press and private agencies, to bring the needs of the university to the attention of persons having surplus wealth. The association has already received a number of bequests.

The association came into being because there was a strong feeling in Cincinnati years ago that the city, which owns the university, was not, perhaps, the best corporation to hold trust funds for it, and this attitude was strongest among the people who had the most to give. So, to meet this feeling, and to interest a larger number of citizens in the university, the alumni and friends of the institution formed the endowment fund association, and we believe it will grow in power and influence and do more and better work as the years go on.

XI. REED COLLEGE, PORTLAND, OREG.

By WILLIAM T. FOSTER, President.

Reed College is neither a municipal institution nor a university. It is established on a private endowment with no obligation to State, city, religious denomination, or individuals. The officers of the college believe, however, that the institution should serve the entire city; and the aim has been from the outset to see to it that no indi-

vidual in the city of Portland, Oreg., should fail to gain some benefit from Reed College.

The fact that the city has contributed no money for the support of the college, and has not been asked to contribute any, has not prevented the college from cooperating effectively with the city administration. Members of the faculty have aided in the work of the art museum, the public library, the vice commission, health bureaus, and the home for delinquent girls. One of the faculty is head of the Oregon Civic League, an independent organization of voters for promoting good government. One of the faculty was the first chairman of the committee of 100 which carried on a campaign that resulted in carrying the State of Oregon for prohibition by some 30,00 majority. Another faculty member is president of the Oregon Social Hygiene Society, an organization which has received $20,000 aid from the State. Five members of the faculty, working under this organization, have given lectures on social hygiene to public schools and to the employees of department stores, factories, railroad companies, and lumber camps.

Members of the faculty are on the boards of the Congress of Mothers, the Parent Teachers' Association, the Drama League, the Oregon Peace Society, the Archeological Society, the Academy of Sciences, the College Equal Suffrage League, the Dental Education Society, the Advertising Law and Ethics Committee. The head of the department of biology is an adviser of the Fish and Game Commission, one of their experiment stations having been constructed at the expense of the State on the college campus.

The college has endeavored to aid the city in solving some of its problems through the activities of both the faculty and the students. It is one of the settled principles of the college that faculty and students shall work together for the welfare of the city. In this cooperative work students receive certain kinds of training and practical experience in public service, similar, in the field of social service, to the cooperative plan in engineering at the University of Cincinnati. The young psychologists, for example, are doing field work in psychology. These students are preparing themselves in a measure for work as experimental psychologists in connection with agencies for the care of the feeble-minded and the morally delinquent.

When the city commissioners were faced with the problems of motion-picture and vaudeville shows, the mayor of the city called upon the college to furnish information. A committee of 60 investigators was organized, covered every theater in the city, and made a report to the mayor. The mayor, commissioner, and all the people of the city are led to understand that they are free to call upon the college for aid of any kind at any time, and they are constantly doing so.

Last winter the problems of the unemployed were studied. The member of the faculty in charge of social economics took a group of his major students and an assistant in his department and made a scientific study of the problem. The students and faculty went among the unemployed, slept with them, ate with them, talked with them, lived with them, and got life histories of 431 of these men. They got the kind of accurate information that is necessary as a basis for intelligent action; and the college published the report.

Significant of attitude of the college toward the city is the extension course on "The voter and the city of Portland." This course aims to present to every voter in the city of Portland the kind of information he ought to have in order to exercise intelligently his prerogatives as a citizen, and to present it in a concrete, nonpartisan, accurate, up-to-date, and interesting way. For that purpose the cooperation of every department of the city was secured and the faculty and students—all this work is done by faculty and students together—went into every department of the city and endeavored to learn all they could. They then presented to the voters many timely items of information, never before available to any except a very few on the inside. The work was to bring out the facts, whether they were favorable or unfavorable to any individual, or to any political party, or to any form of government. Word was sent all over the city that anybody who could get together 50 people anywhere could hear this course of six lectures.

The students of the college presented this course in several places. Work in public speaking in this field was continued by having students explain to voters the measures on the initiative ballot. Students of the college have spoken on street corners, in public parks, social halls, public libraries, schoolhouses, churches—wherever the people would listen to them.

The college could not cooperate more effectively with the public libraries of the city if it owned the libraries. Every room in the main library, every room in every branch library, is made available by our progressive library board and staff for extension work.

Another branch of the work has been the annual conference, in which endeavor has been made to get together at Reed College the representatives of every organization in the city of Portland which in any way seeks to promote the welfare of the city. This annual conference has thus been a kind of clearing house for agencies for social, moral, economic, and political progress. Every organization in the city of Portland, private or public, which was working for some definite improvement, took part in the conference held last spring at Reed College. Over 150 organizations were officially represented through exhibits and on the programs of that conference, and some 5,000 persons attended.

The college has been in operation only three years. Much of the work, therefore, is tentative, and most of the plans are as yet visions of things hoped for. Three years is not a long time in which to find and use every opportunity for service to the city; especially since there were in Portland, four years ago, no buildings, no campus, no faculty, no students, no college—only an endowment and an opportunity. Yet, in these few years, the conviction has grown that a college in a city like Portland, Oreg., is limited in the possibilities of service only by the limits of its own intelligence and faith.

XII. UNIVERSITY OF LOUISVILLE, LOUISVILLE, KY.

By JOHN L. PATTERSON,
Dean of College of Liberal Arts.

The University of Louisville, Louisville, Ky., was founded in 1837 by a decree of the city council, and was chartered in 1846 by an act of the legislature. Owing to local conditions, only the schools of medicine and of law were put immediately into operation.

About eight years ago, or about the time when the Carnegie Foundation investigated the status of the medical schools in this country, the trustees realized that for the completeness of the university an "academic department" must be added. And so the original purpose of the founders was at length fulfilled by the establishment of the present college of arts and sciences.

The attempt has been made to develop the college as a modern municipal university, which will cooperate in due time with the various departments and public institutions of Louisville, and offer an equality of educational opportunity to the sons and daughters of its citizens. The university has been influenced in this work by the example of the municipal universities in this country and in England, and especially by the brilliant one of the University of Cincinnati.

The college of arts and sciences coopcrates with the Board of Education of Louisville, and offers a B. S. degree in education for a prescribed course of study pursued in the college, together with complementary technical work done in the public normal school. The college further cooperates with the board of education by giving annually a series of free lectures on educational psychology to a large class of public-school teachers.

In the second place, the college cooperates with the Baptist and the Presbyterian Theological Seminaries which are located in Louisville, by offering to their students free tuition in the undergraduate courses. The amount of credit given for the work done in the theological seminaries is adjusted in such a way that a combined aca-

demical and theological degree when granted fulfills the proper and customary conditions of such degrees.

In the third place, the college cooperates with the Louisville chapter of the American Institute of Architects by offering courses in architectural design and the history of architecture to young men who are employed in the offices of the local architects, and so gives them the opportunity of becoming more than draftsmen.

In the fourth place, the college cooperates with the hospitals in Louisville by offering to the nurses from time to time night courses in physiology, hygiene, and bacteriology.

The college cooperates also with the associated charities of Louisville, and offers instruction in theoretical and practical sociology to those engaged in the work of charity and social service in the city.

This year, with the cooperation of a local department store, part-time employment has been secured for a few young men who are also pursuing their regular studies in the university and who could not continue their college course without financial assistance. The hope is that these plans of cooperation will develop successfully in the future.

The institution has grown from a college of about 75 students to a college of 338 students at the present time—an increase of more than 300 per cent in less than 7 years. The trustees, as soon as the accommodations are adequate and the funds sufficient, will offer free tuition to all graduates of the public high schools. The free tuition at present is limited to about 35 scholarships.

XIII. NORTHWESTERN UNIVERSITY, EVANSTON, ILL.

By W. E. Hotchkiss, Dean.

The members of the faculties of Northwestern University have always participated largely, in their individual capacities, in the affairs of the community. This participation has taken the form of committee activity in civic organizations, in services rendered in connection with special investigations and reports, and occasionally in the holding of public office.

There have been a number of ways in which the university as a corporate body has participated in affairs of community interest, but this has been in cooperation with individuals or with private organizations rather than with any arm of the government. As a specific instance of this, six years ago a number of men, including the executive officers of the Chicago Association of Commerce, cooperated with the president and other representatives of Northwestern University in establishing the Northwestern University School of Commerce in Chicago. This was perhaps the first instance of a school of commerce

being founded in any community with the active participation of the business men working through representative business organizations. Their cooperation with the university in working out subject matter of new courses, as well as methods of instruction to meet business needs, has been of even greater significance.

The fact that a large number of men could profit immediately if courses were offered in the evening led to placing the chief emphasis on evening work at the start.

That the Northwestern School has filled a need is evidenced both by the number and the kind of men who have been in attendance. From an initial enrollment of 250 in the first year the registration has increased to 750 for the present year.

Instruction in the evening classes of the school of commerce is addressed to mature men. A surprisingly large number of students are already holding positions of trust and responsibility. These men are attending the school not for some indefinite benefit in the future, but in order to make themselves more efficient in the positions they now occupy.

Instruction is based on three fundamental aims: First, to give students a comprehensive many-sided survey of business facts and experience; second, to develop a power of accurate analysis which will prepare the student to think complicated business problems through to the end; third, to maintain an atmosphere in which large business problems will be regarded instinctively in a large and public-spirited way.

The securing of suitable teachers was the first condition of success. Two sources have been drawn from. On one hand, men who are primarily teachers have been secured to make a study of business through cooperation with business men. On the other hand, successful business men have been prevailed upon to give special courses in subjects with which they are thoroughly familiar. Though both of these types of men are necessary to the development of an efficient instruction staff, experience shows that it is essential above all else to have good teachers.

One of the problems has been the selection of students. We do not intend to do any work below university grade. On the other hand, the public purpose for which the evening classes are offered would scarcely be fulfilled if formal college entrance requirements were imposed. The situation is handled in four different ways:

1. By age requirement. No one under 18 will be admitted, and all under 21 must have completed a full four-year high-school course.

2. By tuition rates. Experience and investigation show that a fairly high tuition rate has a selective influence which roughly tends to eliminate the less mature man.

3. By appealing to the man who is able to do university work and who is attracted by the prospect of studying fundamental principles rather than of securing quick rule-of-thumb instruction.

4. By a careful interviewing of every applicant for admission. This interviewing by a member of the faculty has resulted in raising the standard of admission every year and in reducing the number who are admitted only to be disappointed later in finding themselves unable to carry the work.

The result is the automatic elimination of those who can not carry the work, for unlike college students whose expenses are paid by parents the man who is working for a living and who comes to school after the day's labors are done will not continue in school unless he feels there is some return.

XIV. COLLEGE OF THE CITY OF NEW YORK, NEW YORK, N. Y.

By CHARLES BASKERVILLE, Professor of Chemistry.

The College of the City of New York has a charter which limits its activities. The board of trustees, however, with the approval of the mayor and corporation counsel, has prepared an amendment to the charter, which will be presented to the next legislature.

The college, up to about 10 years ago, began its work in the morning at 8 or 9 o'clock, and it was virtually over at 1 p. m. Now some departments—for example, the departments of chemistry and physics—go from 9 o'clock in the morning to 6.45 in the afternoon, and then two nights in the week from 7.30 to 11.30.

Ten years ago the purpose was mainly to train a large number of teachers for the public-school system; later the college began to spread out in the line of extension courses, primarily for teachers. After settling in the new buildings, with improved facilities the college was able to prepare young men to act as summer playground and evening center directors.

As soon as the Great Hall of the college, seating nearly 3,000, was completed and the grand organ installed, the professor of music inaugurated a series of public organ recitals, giving them twice a week. The number of recitals is now approaching 400, and some 500,000 music lovers of the city have attended.

Evening sessions of the college were then inaugurated. The night college, now enrolling over 800 students, was established after careful investigation of the work done in evening institutions in this country, and it was opened on one condition, viz, that the standard of entrance requirements for the evening session should be exactly the same as the standard entrance requirements for the college proper.

Formerly all the students were required to pursue definite courses laid down, with some election leading toward a degree, the bachelor

of arts or bachelor of science. Some little time ago the board of trustees authorized the admission of what are known as *special* students. Some of the departments, especially those of chemistry, physics, economics, and natural history, welcomed those students, because it gave an opportunity to take some of the graduates, or graduates from other places, who had not had opportunity to take special courses, to fit themselves better for municipal or for other work of a practical type.

Last year the board authorized a class of students who are designated as *municipal* students. A municipal student may be admitted to the institution on several conditions: First, he must bring proper papers showing that he is an employee of the city; and, second, he must comply with the requirements of the department in which he desires to work. He need not comply with all of the college entrance requirements, provided he shows maturity and exhibits fitness for the particular line he may wish to pursue.

What has been said in reference to special and municipal students applies to the evening as well as the day sessions. There were 250 municipal students in the evening sessions last year.

Another phase of cooperation with the city is that which may result from the activities of the teaching staff in service for the city or community. Last year one of the professors was assigned to the State factory investigating commission, to direct the study of the minimum-wage problem. He was given a leave of absence, his salary being paid by the State. Previous to this the professor of economics had utilized some of the advanced students in an investigation of pin setters in bowling alleys. A new law restricting the employment of the younger boys in such capacity resulted.

The professor of chemistry undertook an investigation for the State factory investigating commission, and made a very elaborate report on the wood-alcohol situation. He formulated the laws that were subsequently adopted and made a part of the city ordinances by the board of health, and these laws constitute the basis of the laws which are to be urged for uniform adoption throughout this country.

The professors of biology and chemistry carried out for the school inquiry committee of the board of estimate and apportionment an investigation of the ventilation of the schools of the city, with the result that a large expenditure that had been urged was avoided.

The professor of chemistry has served on the mayor's commission on tares and tolerances in working out the new laws in reference to net weight, etc., for different kinds of foods.

Two members of the college staff (the professor of hygiene and an instructor in chemistry) are at present on the advisory council of the board of health.

It must be frankly acknowledged, however, that most of this cooperation has come about primarily through the initiative of the different departments of the college. For example, in the department of chemistry there are three courses given in cooperation with the other departments of the city government. One is designated municipal chemistry, and is given in cooperation with the standard-testing laboratory of the board of estimates and apportionment. The city supplies the college with the samples used in determining the standard and quality of the materials it purchases, and the students do the laboratory work in the city's testing laboratory after they have had instruction in the college.

A similar arrangement exists with the board of health in regard to food investigations and food control. There is a very satisfactory arrangement with the board of health in the matter of food inspection, whereby the laboratory work is all done, or the practice is all obtained, under the direct supervision of an inspector of the board of health.

Senior students in the department of political science give brief courses in the settlements on the economic problems they have covered in college. They are also volunteers in the Big Brother work in the city. Some students also aid in the training work of the city Young Men's Christian Association and Young Men's Hebrew Association.

The employment bureau, maintained by voluntary subscriptions, keeps in touch with business opportunities for needy students at college and after graduation. These are some of the lines of activity that have been developed. An important question is the type of training we should provide for men going primarily into the municipal service. It stands to reason that training for municipal service should be somewhat different from the training given a man who is going into actual commercial manufacturing. It can not be expected that all of the 1,500 students in the regular day college will go into the municipal service. The market would be glutted. Shall the courses be shaped for the few who are preparing for the service of the city, or for the large number who are going to schools of technology or to universities to perfect themselves in certain professional fields?

BULLETIN OF THE BUREAU OF EDUCATION.

[NOTE.—With the exceptions indicated, the documents named below will be sent free of charge upon application to the Commissioner of Education, Washington, D. C. Those marked with an asterisk (*) are no longer available for free distribution, but may be had of the Superintendent of Documents, Government Printing Office, Washington, D. C., upon payment of the price stated. Remittances should be made in coin, currency, or money order. Stamps are not accepted. Numbers omitted are out of print.]

1906.

*No. 3. State school systems: Legislation and judicial decisions relating to public education, Oct. 1, 1904, to Oct. 1, 1906. Edward C. Elliott. 15 cts.

1908.

*No. 5. Education in Formosa. Julean H. Arnold. 10 cts.
*No. 6. The apprenticeship system in its relation to industrial education. Carroll D. Wright. 15 cts.
No. 8. Statistics of State universities and other institutions of higher education partially supported by the State, 1907–8.

1909.

*No. 1. Facilities for study and research in the offices of the United States Government in Washington. Arthur T. Hadley. 10 cts.
No. 2. Admission of Chinese students to American colleges. John Fryer.
*No. 3. Daily meals of school children. Caroline L. Hunt. 10 cts.
No. 5. Statistics of public, society, and school libraries in 1908.
*No. 6. Instruction in the fine and manual arts in the United States. A statistical monograph. Henry T. Bailey. 15 cts.
No. 7. Index to the Reports of the Commissioner of Education, 1867–1907.
*No. 8. A teacher's professional library. Classified list of 100 titles. 5 cts.
*No. 9. Bibliography of education for 1908–9. 10 cts.
No. 10. Education for efficiency in railroad service. J. Shirley Eaton.
*No. 11. Statistics of State universities and other institutions of higher education partially supported by the State, 1908–9. 5 cts.

1910.

*No. 1. The movement for reform in the teaching of religion in the public schools of Saxony. Arley B. Show. 5 cts.
No. 2. State school systems: III. Legislation and judicial decisions relating to public education, Oct. 1, 1908, to Oct. 1, 1909. Edward C. Elliott.
*No. 5. American schoolhouses. Fletcher B. Dressler. 75 cts.

1911.

*No. 1. Bibliography of science teaching. 5 cts.
*No. 2. Opportunities for graduate study in agriculture in the United States. A. C. Monahan. 5 cts.
*No. 3. Agencies for the improvement of teachers in service. William C. Ruediger. 15 cts.
*No. 4. Report of the commission appointed to study the system of education in the public schools of Baltimore. 10 cts.
*No. 5. Age and grade census of schools and colleges. George D. Strayer. 10 cts.
*No. 6. Graduate work in mathematics in universities and in other institutions of like grade in the United States. 5 cts.
No. 7. Undergraduate work in mathematics in colleges and universities.
No. 9. Mathematics in the technological schools of collegiate grade in the United States.
*No. 13. Mathematics in the elementary schools of the United States. 15 cts.
*No. 14. Provision for exceptional children in the public schools. J. H. Van Sickle, Lightner Witmer, and Leonard P. Ayres. 10 cts.
*No. 15. Educational system of China as recently reconstructed. Harry E. King. 10 cts.
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1912.

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*No. 3. Report of committee on uniform records and reports. 5 cts.
*No. 4. Mathematics in technical secondary schools in the United States. 5 cts.
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No. 26. Bibliography of child study for the years 1910–11.
No. 27. History of public-school education in Arkansas. Stephen B. Weeks.
*No. 28. Cultivating school grounds in Wake County, N. C. Zebulon Judd. 5 cts.
No. 29. Bibliography of the teaching of mathematics, 1900–1912. D. E. Smith and Chas. Goldziher.
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No. 1. Monthly record of current educational publications, January, 1913.
*No. 2. Training courses for rural teachers. A. C. Monahan and R. H. Wright. 5 cts.
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*No. 22. Bibliography of industrial, vocational, and trade education. 10 cts.
*No. 23. The Georgia club at the State Normal School, Athens, Ga., for the study of rural sociology. E. C. Branson. 10 cts.
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*No. 31. Special features in city school systems. 10 cts.
No. 32. Educational survey of Montgomery County, Md.
*No. 34. Pension systems in Great Britain. Raymond W. Sies. 10 cts.
*No. 35. A list of books suited to a high-school library. 15 cts.
*No. 36. Report on the work of the Bureau of Education for the natives of Alaska, 1911–12. 10 cts.
No. 37. Monthly record of current educational publications, October, 1913.
*No. 38. Economy of time in education. 10 cts.
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*No. 40. The reorganized school playground. Henry S. Curtis. 10 cts.
*No. 41. The reorganization of secondary education. 10 cts.
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*No. 46. Educational directory, 1913. 15 cts.
*No. 47. Teaching material in Government publications. F. K. Noyes. 10 cts.
*No. 48. School hygiene. W. Carson Ryan, jr. 15 cts.
No. 49. The Farragut School, a Tennessee country-life high school. A. C. Monahan and Adams Phillips.
*No. 50. The Fitchburg plan of cooperative industrial education. M. R. McCann. 10 cts.
*No. 51. Education of the immigrant. 10 cts.
*No. 52. Sanitary schoolhouses. Legal requirements in Indiana and Ohio. 5 cts.

No. 53. Monthly record of current educational publications, December, 1913.
No. 54. Consular reports on industrial education in Germany.
No. 55. Legislation and judicial decisions relating to education, Oct. 1, 1909, to Oct. 1, 1912. James C Boykin and William R. Hood.
No. 58. Educational system of rural Denmark. Harold W. Foght.
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No. 60. Statistics of State universities and other institutions of higher education partially supported by the State, 1912–13.

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No. 6. Kindergartens in the United States.
No. 7. Monthly record of current educational publications, March, 1914.
*No. 8. The Massachusetts home-project plan of vocational agricultural education. R. W. Stimson. 15 cts.
No. 9. Monthly record of current educational publications, April, 1914.
No. 10. Physical growth and school progress. B. T. Baldwin.
*No. 11. Monthly record of current educational publications, May, 1914. 5 cts.
*No. 12. Rural schoolhouses and grounds. F. B. Dresslar. 50 cts.
No. 13. Present status of drawing and art in the elementary and secondary schools of the United States. Royal B. Farnum.
No. 14. Vocational guidance.
No. 15. Monthly record of current educational publications. Index.
No. 16. The tangible rewards of teaching. James C. Boykin and Roberta King.
No. 17. Sanitary survey of the schools of Orange County, Va. Roy K. Flannagan.
No. 18. The public school system of Gary, Ind. William P. Burris.
No. 19. University extension in the United States. Louis E. Reber.
No. 20. The rural school and hookworm disease. J. A. Ferrell.
No. 21. Monthly record of current educational publications, September, 1914.
No. 22. The Danish folk high schools. H. W. Foght.
No. 23. Some trade schools in Europe. Frank L. Glynn.
No. 24. Danish elementary rural schools. H. W. Foght.
No. 25. Important features in rural school improvement. W. T. Hodges.
No. 26. Monthly report of current educational publications, October, 1914.
*No. 27. Agricultural teaching. 15 cts.
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No. 29. The kindergarten in benevolent institutions.
*No. 30. Consolidation of rural schools and transportation of pupils at public expense. A. C. Monahan. 25 cts.
*No. 31. Report on the work of the Bureau of Education for the natives of Alaska. 25 cts.
No. 32. Bibliography of the relation of secondary schools to higher education. R. L. Walkley.
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No. 34. Library instruction in universities, colleges, and normal schools. Henry R. Evans.
No. 35. The training of teachers in England, Scotland, and Germany. Charles H. Judd.
*No. 36. Education for the home—Part I. General statement. B. R. Andrews. 10 cts.
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No. 38. Education for the home—Part III. Colleges and universities. Benjamin R. Andrews.
No. 39. Education for the home—Part IV. Bibliography, list of schools. Benjamin R. Andrews.
No. 40. Care of the health of boys in Girard College, Philadelphia, Pa.
No. 41. Monthly record of current educational publications, November, 1914.
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No. 48. The educational museum of the St. Louis public schools. C. G. Rathman.
No. 49. Efficiency and preparation of rural-school teachers. H. W. Foght.
No. 50. Statistics of State universities and State colleges.

1915.

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No. 6. A study of colleges and high schools.
No. 7. Accredited secondary schools in the United States. Samuel P. Capen.
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No. 11. A statistical study of the public school systems of the southern Appalachian Mountains. Norman Frost.
No. 12. History of public school education in Alabama. Stephen B. Weeks.
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No. 15. Monthly record of current educational publications. Index, February, 1914—January, 1915.
No. 16. Monthly record of current educational publications, June, 1915.
No. 17. Civic education in elementary schools, as illustrated in Indianapolis. A. W. Dunn.
No. 18. Legal education in Great Britain. H. S. Richards.
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UNITED STATES BUREAU OF EDUCATION
BULLETIN, 1915, NO. 39 - - - - - - - WHOLE NUMBER 666

THE TRAINING OF ELEMENTARY-SCHOOL TEACHERS IN MATHEMATICS

IN THE COUNTRIES REPRESENTED IN THE INTERNATIONAL COMMISSION ON THE TEACHING OF MATHEMATICS

By I. L. KANDEL

ASSOCIATE IN EDUCATIONAL ADMINISTRATION, TEACHERS COLLEGE, COLUMBIA UNIVERSITY, AND SPECIALIST IN EDUCATION, CARNEGIE FOUNDATION FOR THE ADVANCEMENT OF TEACHING

With the Editorial Cooperation of

DAVID EUGENE SMITH, WILLIAM F. OSGOOD,
J. W. A. YOUNG

MEMBERS OF THE COMMISSION
FROM THE UNITED STATES

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10 CENTS PER COPY

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THE TRAINING OF ELEMENTARY-SCHOOL TEACHERS IN MATHEMATICS

IN THE COUNTRIES REPRESENTED IN THE INTERNATIONAL COMMISSION ON THE TEACHING OF MATHEMATICS.

INTRODUCTION.

The accompanying report deals with the mathematical training of prospective teachers in elementary schools as described in the reports submitted by the International Commission on the Teaching of Mathematics to the Fifth International Congress of Mathematicians, held at Cambridge, England, in August, 1912. A comparative study of the facts presented in these reports is of interest for those engaged in the training of teachers in this country, if only because they indicate that the standards elsewhere are as chaotic as they are here. The requirements of the normal schools, or corresponding institutions, vary from a review of the elementary-school arithmetic to the mathematics required for entrance to colleges and universities; or, from another point of view, from an emphasis on the purely professional needs, limited to the immediate requirements of the elementary schools, to academic and cultural aims founded on the principle that the more a teacher knows about the subject, in addition to the purely professional training, the more successful will be his teaching. But, great as is the variety of standards and aims in Europe, almost every standard finds a parallel in this country, owing to the absence of uniformity—a condition almost paralleled in England and Switzerland. But, if a generalization may be permitted, it would be true to say that the academic standards in the best systems are higher in the more advanced countries of Europe than they are in the United States.

Several reasons may be adduced to account for the condition here described. The training of elementary-school teachers is still obsessed with the traditions that are associated with a system of training by apprenticeship. More emphasis has always been placed on professional knowledge and technical ability than on general academic training; so that while the secondary-school teacher has been expected to be a master of subject matter, the elementary-school teacher has been narrowly trained in methods of instruction. Hence the candidate for the elementary-school branch has been considered to be sufficiently equipped if his knowledge of subject matter is equivalent to that given in a secondary school. Another important

factor, which has perhaps not received the attention in the reports that it merits, is that in general the instructors in normal schools are themselves not university trained, and the demand for university-trained instructors can not become strong until the principles upon which the training of elementary-school teachers is based become broader and more liberal. Finally, it may be that in most countries, and in the United States in particular, the standards in mathematics have been greatly affected by the fact that the great majority of candidates entering the teaching profession are women. It is almost universally the case in European normal schools that in mathematics lower attainments are required from the women than from the men students.

The general problem is, however, receiving considerable attention both in practical administration and in theoretical discussions. At present the European countries are all passing through a transition stage, which finds expression in dissatisfaction with the prevailing arrangements. The tendency generally is in the direction of raising the standards of the academic or cultural training—a tendency which reaches its culmination in the admission of certain elementary-school teachers to some university courses in Germany; in the provision of facilities to attract graduates of secondary schools to the elementary-school service, as in Hesse, England, Italy, and Switzerland; in the gradual separation of professional and academic training by such a provision as the introduction of a fourth year for students in the departments of education of universities in England; and in the United States in the continually increasing opportunities for the improvement of teachers in service. That the best thought in this country has not been backward in formulating the task that lies before those interested in the training of teachers is indicated in the recommendations of the American committees, which are quoted in the section on the United States.

BELGIUM.

The normal schools for men and women in Belgium are organized on the basis of a four-year course. The students are admitted at the age of 15, after an entrance examination on the subjects of the elementary school. Arithmetic is the only mathematical subject included in the examination, and consists of a written test (two questions of general arithmetic and two problems) and an oral test (two questions of general arithmetic and an exercise in mental arithmetic). The students must obtain 50 per cent of the marks to pass.

The mathematical subjects in the normal schools consist of arithmetic, algebra (in first and second years), and plane geometry (in second and third years) for men, and only arithmetic for women. The time allotment per week is as follows:

Time allotment per week in mathematical subjects.

	First year.	Second year.	Third year.	Fourth year.
Men	3	3	2	2
Women	2	2	1	1

Algebra and geometry are dropped in the fourth year of the men's course, and the time is given to a review of arithmetic with special reference to the requirements of the elementary school and the method of instruction. Promotion examinations take place at the close of each year on the subjects of that year. The final examination includes only mental and general arithmetic and the metric system.

The following aims are prescribed in the regulations of 1896: (1) The subjects are to be limited to what is necessary with special reference to the needs of the different stages of the elementary school; (2) attention is to be confined to the purely professional aspect without digressions into theory, except that instruction in everyday arithmetic must emphasize the practical utility of the subject and its content with reference to partnership, insurance, savings banks, annuities, etc.; in mental arithmetic the students are to be drilled in short methods and rules rather than principles; (3) the students must be trained by frequent handling of concrete objects, by questions, oral work, and practical exercises to promote their own development. It is found, however, that as a general rule the method of instruction is didactic, and the students tend to be passive recipients.

The outline of the work in the men's normal schools is as follows:

FIRST YEAR.

Arithmetic.—Integers. Preliminary introduction and definitions. Decimal system. Fundamental operations, their number and character; methodical explanation; principles of multiplication and division.

Decimal numbers. Numeration and its properties. Fundamental operations. Approximations.

Concrete and practical study of the legal system of weights and measures.

Divisibility and properties of numbers. Principles of divisibility, e. g., by 2 and 5, by 4 and 25, by 8 and 125, by 9 and 3, by 111. Remainders in divisions by these numbers. Test of multiplication and division by casting out the 9's.

Greatest common measure of two or more numbers by the method of successive divisions.

Common fractions; origin and definitions. Numeration. Simplification of fractions. Reduction of fractions. Reduction to the same denominator. Fundamental operations. Conversion into decimal fractions.

Exercises in mental arithmetic, chiefly with the aid of short method with whole numbers, decimals, and common fractions.

Solution (by the method of reduction to unity) of various problems bearing on everyday needs.

Discussion of the work in the lower stage of the elementary school.

Algebra.—Easy problems to illustrate the value of algebraic notation. Introduction and definitions. Fundamental operations. Factors. Fractions; definition; simplification by factors. Fundamental operations. Equations; definitions; general principles of the solution of equations. Solution of numerical equations of the first degree with one, two, and three unknowns. Methods of elimination by addition and subtraction, by substitution, by comparison of values. Problems. Principles of divisibility. Division of $x^n \pm a^m$ by $x \pm a$.

SECOND YEAR.

Arithmetic.—Properties of numbers. Least common multiple and greatest common measure of two or more numbers. Reduction of fractions to the same denominator. Divisibility by 6, 18, 15, 45, etc.

Recurring decimals.

Ratio and proportion. Numbers directly and inversely proportional. Problems.

Method of reduction to unity. Application to rule of three. Simple interest; simple discount at home and abroad; average maturity; revenues; contracts; savings banks and State annuities; insurance; proportional shares and partnership; rate, exchange, and commission; alligation; and alloys.

Mental arithmetic on these operations.

Discussion of the work of the intermediate stage of the elementary school, including the legal system of weights and measures.

Algebra.—Algebraic equations of the first degree with one unknown. Problems. Examples of indeterminate and impossible numerical equations.

Meaning of negative solutions of problems. Exercises on negative quantities.

Discussion of results in the forms: $\frac{A}{0}$, $\frac{0}{0}$, $\frac{0}{A}$.

Discussion of problems of moving bodies, etc., especially of geometric problems.

Algebraic equations of the first degree with two or three unknowns. Problems. Discussions of the general principles for solving two equations with two unknowns.

Geometry.—Definitions. Axioms. Properties of triangles. Equality of triangles.

Properties of perpendiculars and oblique lines. Equality of right triangles. Parallels. The sum of the angles of a triangle and of some polygons. Properties of a parallelogram.

Properties of the circle and figures resulting from combinations of circles and straight lines. Relative positions of two circles.

Incommensurables in general. Measurement of angles. Inscribed and circumscribed quadrilaterals.

Noteworthy points of triangle; circumscribed, inscribed, and escribed circles; center of gravity, common point of the altitudes.

Problems of construction. Loci. Analysis and synthesis in geometric solutions. Applications.

Measurement of plane areas. Principal relations between the parts of a triangle.

THIRD YEAR.

Powers. Extraction of square and cube roots. Determination of these roots approximately.

Arithmetical and geometric progressions.

Logarithms. Use of tables. Application to compound interest and annuities.

Discussion of the work of the upper stage of the elementary school.

Geometry.—Proportional lines. Similarity of figures. Proportional lines in a circle. Area of the triangle as a function of the three sides.

Problems of construction based on the previous course.

Properties of regular polygons. Construction of regular polygons with 3, 4, 5, 6, 8, 10, 12, and 15 sides. Area of a regular polygon. Measurement of circumference, circle, and sector. Discussion of a method of determining the relation of the circumference to the diameter. Problems of construction.

Surveying. Description of use of surveying instruments. Measurement of the size of plats. Drafting of plans with the aid of the instruments and the plane table. Practical applications. Leveling.

Review.

FOURTH YEAR.

Arithmetic.—Thorough review of the work of the first two years. Review of the program of the elementary school as a whole with model lessons, especially on those parts less thoroughly studied in the normal schools.

Various problems and exercises in rapid calculation.

In addition to this program the students are given a course in special method by the professor of method. This course includes a discussion of the methods of the mathematical sciences—analysis and synthesis, induction and deduction, and of the theory and method to be followed in teaching arithmetic, the system of weights and measures, and the prescribed program. This course is supplemented by the professor of mathematics, who discusses the development and correlation of the programs of the elementary and adult school, and directs the model lessons in the subject and the subsequent criticisms. In the different classes of a practice school the students give practice lessons in computation, theoretic arithmetic, and the metric system.

The program of the normal schools is admittedly inadequate, but the tendency to adopt the suggestions of the modern reform movement is not yet appreciably strong. All that the reformers propose at present is an extension of the arithmetic program in the normal schools for women by one year and the introduction of two books of plane geometry, and in the normal schools for men the continuation of algebra up to the solution of equations of the second degree with one unknown and of geometry up to the chief principles of solid geometry.

DENMARK.

The normal schools of Denmark are public and private, but all are under State supervision; a few are coeducational; students, who must be over 18 years of age on entering, must have had one year's teaching experience before they are admitted. The minimum entrance requirements in mathematics consist of ability to handle the four fundamental operations with integral numbers and fractions (including decimals), to solve easy problems, and to work the four fundamental operations in algebra. In the normal schools the courses of the first two years are of a general cultural character, while the

third year is devoted to professional studies and practice teaching. Mathematics is taught only in the first two years, 8 hours a week in the first year and 7 in the second out of a total of 36 hours.

The standards attained in mathematics in the normal school are indicated in the scope of the final examination conducted by the State board of education:

Arithmetic.—Rule of three. Compound rule of three with application to problems including foreign coinage, measures, and weights; divisibility; alligation; compound interest; common business processes; decimal fractions. Extraction of roots; equations of the first and second degrees; calculation of surfaces and solids.

General arithmetic and algebra.—The four fundamental operations; powers and roots; factors; divisions of polynomials; greatest common measure and least common multiple of numbers and polynomials; proportion; equations of first and second degrees with one or more unknowns; simple equations of the second degree with several unknowns; decimal fractions; logarithms; compound interest and annuities; arithmetical and geometric progressions.

Geometry.—The chief principles of plane geometry; straight lines and circles; equality and similarity; calculation of areas and volumes; application of these principles to simple constructions.

It is probable that some reform will be introduced. Those who are especially interested—the normal-school instructors—demand some change in the content of the subjects and more attention to the special method of teaching arithmetic.

The State offers a one-year course and several shorter vacation courses which afford opportunities for the further education of elementary-school teachers. Here the students may select groups of special subjects. In mathematics 10 hours a week are given to arithmetic, algebra, plane and solid geometry, analytic geometry, trigonometry, and the elements of differential and integral calculus. While the underlying aim is to give the students a more thoroughgoing perspective of the school requirements, efforts are made also to impart some training in scientific methods and to develop independence.

ENGLAND.

A study of the training of teachers in England is somewhat complicated by the fact that the teachers may be recruited in several different ways. The central authority still recognizes uncertificated teachers and certificated teachers. The former may have received their preparation in pupil teacher centers, which are fast disappearing, or in secondary schools, with preliminary education in elementary schools. But in both cases the candidates to be recognized as uncertificated teachers must pass the preliminary examination for the elementary school teachers' certificate or some equivalent examination, usually the entrance or matriculation examination of one of the universities. The certificated teachers again are of two classes—those who have passed through a training college with a two years' course

or the education department attached to a university, and those who have been uncertificated teachers, have had some experience in schools, and have passed the certificate examination of the board of examination for teachers in elementary schools.

In 1911–12 the number of uncertificated teachers was 39,125; that of certificated teachers, 97,104, of whom only 55,497 had been professionally trained.

GENERAL CAREER OF CANDIDATES FOR TEACHING PROFESSION.

The most usual career of the certificated teacher, according to the standard at which the authorities are aiming, would be as follows: Entering the elementary school at the age of 6 or 7, he would remain and probably complete the course at the age of 12, when he would pass on to the secondary school. Here he would be a bursar or scholar maintained by public appropriations until 16 or 17, when he would become a student teacher for a year, combining practical training in an elementary school with academic training continued in the secondary school. At the close of this period he must pass the preliminary examination for the elementary school-teachers' certificate, or some equivalent examination, which admits him to a training college for a two-year course or the education department of a university for a three-year course. The training college gives both academic and professional training; the university education department gives the same and leads to a degree. Recently a new system has been introduced by which a student may devote three years in the university or college to academic subjects and spend a fourth year in the education department on professional work only.

ELEMENTARY SCHOOL MATHEMATICS.

The scope and character of mathematical teaching are changing rapidly in English schools, both elementary and secondary. In the elementary schools the subject has been broadened and now includes, in addition to arithmetic, some instruction in algebra to pupils in upper classes and those preparing for secondary schools, and geometry, covering practically the content of the first book of Euclid. The nature of the work in arithmetic is indicated in the following quotion from the Elementary School Code, 1912:

> Arithmetic, including practical work in measuring and weighing, oral exercises, written exercises (which should be of a varied character and should not infrequently involve the application of more than one arithmetical operation), and, in the higher classes, practice in explaining the processes used. The principles and advantages of a decimal system of weights and measures should be explained to the older scholars, and the use of literal symbols in working simple problems may with advantage be taught in the higher classes. Practical instruction should be given in mensuration and should include drawing to scale, the older boys should learn the use of compasses and protractor, and such practical instruction should be correlated as far as possible with handwork.

Much of the old formal and mechanical drill in numbers is being replaced by more insistence on clear and systematic thinking about number relations in practical situations; reasoning rather than mere mechanical figuring, logical setting out rather than working by rule, are the newer aims of instruction in this field. The following scheme indicates generally the amount of arithmetic, the chief portion of the mathematics of the school, that will have been acquired by a prospective school-teacher in the elementary school period. The practical work and the work correlated with handwork, drawing, and domestic subjects are not brought out in the scheme, but must be taken into account:

FIRST YEAR.

Introductory.

First period.

(Without notation or any ciphering abbreviations; e. g., the 4 in 43 must always be spoken of as forty or four tens, never as four.)

(i) Numeration, as far as 100.

(ii) Relations to each other of the 10 primary numbers comprise:

(*a*) The different ways in which each of them may be made up of any two which come before it.

(*b*) Those of the multiplication tables.

(iii) Use of (*a*) to tell the sum or difference of two numbers, one of which is a primary.

(iv) Addition and subtraction of two composite numbers.

(v) Continued practice in making up the tables, using what has already been remembered.

Second period.

(i) Continuation of above; increased speed to be looked for in addition and subtraction, especially in (iii) above. Counting and other practice with round numbers up to a few tens beyond 100.

(ii) Notation, and suitable exercises from what precedes, to be done in writing.

(iii) Application of the foregoing to simple practical calculations (money, length, and height, omitting fractional values, such as farthings).

Nomenclature, none.

SECOND YEAR.

Chiefly experimental practice, oral and written, all operations without ciphering abbreviations.

First period.

(*a*) Recapitulation.

(*b*) Practical calculations as before, occasionally with two steps.

(*c*) Introductory and experimental:

(i) Extension of numeration to 1,000.

(A few hundreds will be sufficient for all the practice necessary in this period.)

(ii) Continued practice with tables, looking for the results to be remembered, especially the first few multiples of 12.

(iii) Conversion of numbers expressed in tens to hundreds, and vice versa.

(iv) Simple multiplication and division; i. e., performing calculations similar to those of the tables with numbers outside the range of the tables. (The two forms of division to be kept separate until the children have had experience enough to recognize their identity when the working is set down in figures.)

Second period.

(i) Continuation of above.

(ii) Visual demonstration of the principle $a \times b = b \times a$, and its use especially for reckoning ten, twenty, or a hundred times a number.

(iii) Easy exercises introductory to long division, such as number of thirties or twenty-eights in 200.

(iv) Practical exercises in the four rules with simple numbers.

(*d*) Ciphering: Additions, subtractions, and multiplications.
Nomenclature: *Add, subtract, multiply* (and *unit*, if required).

THIRD YEAR.

First period.

(*a*) Recapitulation; all previous exercises to be frequently repeated at full length; i. e., without technical nomenclature or ciphering abbreviations.

(*b*) Practical examples as before with larger, but in the main round, numbers.

(*c*) Preparatory and experimental:

(i) Leading to the long rules.

(ii) Easy examples of repeated multiplications and divisions, with numbers and money.

(iii) Written form of the four rules, numbers and money, multipliers and divisors as a rule of not less than two figures.

(iv) The standard units; pounds sterling and avoirdupois, day, year, yard.

Second period.

(v) Submultiples of these, attention being called to their insufficiency for the general purpose of measurement.

(vi) Experimental practice in measurement (length and value) with fractional remainders as $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$, $\frac{1}{8}$, $\frac{1}{10}$, $\frac{2}{3}$, $\frac{3}{4}$, fractional notation being withheld at first.

(vii) Easy additions, etc., of such fractions, e. g., $\frac{1}{2}d. + \frac{1}{4}d.$, *1-½ in.* + *1-¼ in.* *half of* $\frac{1}{4}d.$, $\frac{1}{2}$ *in.* + $\frac{1}{8}$ *in.*, $\frac{3}{4}$ *in.* $\times$ *5*.

(viii) Reductions to be worked visually without ciphering (e. g., *17s.=17 times 12 pence or 12 times 17d.*).

(ix) Simple examples of factorial reductions, e. g., *27 times 8d.*, *75 times 16*, *9 times 16 in.*, *90 lbs.* $\times 7$.

(*d*) Ciphering, practice simple and compound rules and reductions.
Nomenclature, previous terms, *divide*, and words like *third*, in the sense of the third part.

FOURTH YEAR.

(*a*) Recapitulation as before; simple explanations of suitable matters to be asked for in writing.

(*b*) Practical exercises rather more searching from a manual and from blackboard.

(*c*) Preparatory and experimental:

(i) Further practice in reduction, showing the form of the rules.

(ii) Further practice in repeated multiplications and divisions and factorial reductions.

(Children being shown the advantage to be derived from these by examples.)

(iii) Return to general problem of measurement; expression of the size of fractional remainder when a common measure is obtainable.

(iv) Conversion of fractional quantities into others of lower denomination (oral demonstration only).

(v) Easy additions, etc., of fractional quantities.

(vi) Tables of weights and measures, capacity, right angle, degrees.

(vii) Further development of the long rules.

(*d*) Ciphering. All previous rules, reduction, with some practice in factorial multiplication and reductions.

Nomenclature as before; terms relating to fractions (as *numerator*, *denominator*, *common measure*, same name) to be withheld, and use of abstract fractional numbers to be avoided.

FIFTH YEAR.

First Period.

(*a*) Recapitulation as before.

(*b*) Practical exercises in what precedes from a graduated collection and the blackboard.

(*c*) (i) Further discussion of fractions with examples of their use in the same way as whole numbers for expressing relative magnitude, e. g., *30=2½ times 12, 20=1⅔ times 12, 2½ times what = 100? etc.*

(ii) Notation of fractions.

(iii) Conversion of a fraction to an equivalent one with any given denominator (by a rational process rather than by rule, e. g., *⅗=⅗ of twenty twentieths*), occasional examples with fractional numeration (e. g., $\frac{3}{10}=\frac{1\frac{1}{2}}{5}$ may assist rather than perplex the class.

(iv) Practice in making up the four rules for fractional numbers; (least common denominator, where required by inspection); the two purposes of division to be treated separately. Special attention is recommended to the case which provides the rule for finding x from the datum times $nx=A$.

Second Period.

(v) Calculation of values, amounts, etc., which may be expressed by simple fractional numbers in terms of quantities for which rates are given; e.g., *40 cwt. at 5s. for 12 cwt.* (commonly called "proportion" sums).

(vi) Easy calculations in the same way involving shop discounts at so much in the shilling, rates and taxes at so many shillings in the pound, interest and discount at so much per £100, profits and losses expressed as simple fractions of the outlay.

(vii) The principle of practice:

(a) Short division preferable to compound multiplications, division by 12, etc.

(b) Cost of n things at ½ of x sh.=½ of cost at x sh.

(*d*) Ciphering practice; all previous rules, including simple fractions, bills of parcels, and practice.

SIXTH YEAR.

First Period.

(*a*) Recapitulation; increased use of questions to be answered in writing.

(*b*) Practice as before.

(*c*) (i) (a) Rules for greatest common measure and least common multiple, whole and fractional numbers.

(b) General form of the rules for multiplication and division with fractional numbers.

(ii) Square measure and cubic measure.

(iii) Practice in setting out the work of weight and measure problems with algebraic symbols.

(iv) The same where the quantities involved are fractional numbers.

(v) Purpose and meaning of the term "per cent": 3 per cent of quantity defined to mean three hundredths of it, and to find what per cent a quantity A is of another B, we must find how many hundredths of B there are in A.

(vi) Calculations involving percentage, profit and loss, attendances, strengths of mixtures, interest, etc., to be worked by fractional rules.

Second Period.

(vii) Further considerations of problem of measurement; failure of method of vulgar fractions to meet the general case; decimal system of expressing fractional quantities and its advantages.

(viii) As a new system of numeration (cf. fifth year (*c*) (i) above).

(A still further extended system will be propounded when algebra is begun, shortly.)

(ix) Construction and practice of the fundamental rules with decimal fractions.

(*d*) Ciphering; all previous rules, etc., processes, and elementary algebra, notation, further extension of numeration to negative values, etc.

SEVENTH YEAR.

(*a*) and (*b*) as before, practice now largely preponderating.

(*c*) (i) Banking and investments; explanation of terms and procedure; examples involving stocks and discounting of bills.

(ii) Limitations of decimal system as described; recurring periods.

(iii) Square root; explanation of rule and exercises.

SECONDARY SCHOOL MATHEMATICS.

All candidates for the teaching profession must attend a secondary school recognized by the board of education as efficient for at least three years. The standards of attainment in mathematics in such secondary schools are fairly well defined by the requirements for the entrance examinations conducted by the various universities, which are accepted as equivalent to the preliminary examination for the elementary school teachers' certificate. The University of London requires for its matriculation examinations the following attainments in elementary mathematics:

Arithmetic:

The principles and processes of arithmetic applied to whole numbers and vulgar and decimal fractions.

The metric system.

Approximations to a specified degree of accuracy.

Contracted methods of multiplication and division of decimals.

Ratio and proportion, percentage. Averages.

Practical applications of arithmetic.

Algebra:

Symbolical expression of general results in arithmetic.

Algebraic laws and their application.

Factors of simple binomial or quadratic expressions.

Equations of the first or second degree, and problems leading thereto.

Square root. Graphs of simple rational integral algebraic functions.

Arithmetic and harmonic progression.

Geometric progression.

Geometry:

The subjects of Euclid I–IV with simple deductions, including easy loci and the areas of triangles and parallelograms of which the bases and altitudes are given commensurable lengths. (All proofs of geometric theorems must be geometric. Euclid's proofs will not be insisted upon.)

This scheme represents the general scope of the work in elementary mathematics. Variations will, however, be found, and some schools will take their pupils beyond these standards. Thus, algebra may be taken up to binomial theorem, and geometry may include the ground covered by Euclid VI and XI (1–21). Mensuration is not infrequently added in many schools, and use is generally made of the opportunity for practice in logarithms. Trigonometry, again, usually forms part of the mathematical course in secondary schools for boys. Mechanics, statics, dynamics, and hydrostatics appear more rarely as part of the usual mathematical curriculum, although they may be included under the subjects of science. The general tendencies of the reform movement in mathematics is to do away with non-essentials and thus to find time for trigonometry or some other branch, while on the side of method more attention is given to training in mathematical thinking in place of mere imitation of processes.

The preliminary examination for the elementary school teachers' certificate, which is conducted by the board of education, consists of two parts. Part I, which is a qualifying test, includes arithmetic among the subjects of examination. In Part II, elementary mathematics forms one of eight optional subjects. The scope of the requirements in arithmetic and elementary mathematics is stated as follows:

PART I. ARITHMETIC.

Excluding Troy weight, apothecaries' weight, practice, ratio, proportion, except by the unitary or fractional method, stocks and shares, true discount, foreign exchange, scales of notation, recurring decimals and complicated fractions, and square and cube roots.

Candidates may be asked to find the square or cube roots of numbers that can readily be expressed as the product of the squares or cubes of small factors.

The metric system will only be applied to measuring length, area, and volume.

Questions may be set on the mensuration of rectangular surfaces and solids.

The use of algebraic symbols will be permitted.

As a rule, the questions set will not involve long operations or complicated numbers, and the answers to money sums will not be required beyond the nearest penny.

The papers will be sufficiently long to allow candidates some latitude in the selection of questions, but no limit will be placed on the number of questions which may be attempted.

PART II. ELEMENTARY MATHEMATICS.

The papers set will be sufficiently long to allow candidates some latitude in the selection of questions, and will permit, therefore, of latitude in the teaching schemes. Candidates will not be limited in the number of questions which they may attempt, nor will they be expected to answer the whole paper.

Every candidate should be provided with a ruler, graduated in inches and tenths of an inch and in centimeters and millimeters, a small set square, a protractor, compasses furnished with a hard pencil point, and a hard pencil. Squared paper will be provided when needed.

As a rule, the questions set will not involve long operations or complicated numbers, and the answers to money sums will not be required beyond the nearest penny.

ARITHMETIC.

Excluding Troy weight, apothecaries' weight, true discount, foreign exchange, scales of notation, recurring decimals, and cube roots.

Candidates may be asked to find the cube roots of numbers that can readily be expressed as the product of the cubes of small factors.

Candidates must understand the principles of the metric system, and should be able to decimalize money readily.

Questions on stocks and shares will be of a simple character and will not involve a knowledge of brokerage.

The use of algebraic symbols will be permitted.

ALGEBRA.

As far as and including simultaneous equations (one of which is linear) in two variables—least common multiple and highest common factor—by means of factors.

Problems leading to the types of equations specified.

GEOMETRY—(1) PRACTICAL.

Bisection of angles and of straight lines. Construction of perpendiculars to straight lines. Construction of an angle equal to a given angle. Construction of parallels to a given straight line. Simple cases of the construction from sufficient data of triangles and quadrilaterals. Division of straight lines into a given number of equal parts or into parts in any given proportions. Construction of a triangle equal in area to a given polygon. Construction of tangents to a circle and of common tangents to two circles. Simple cases of the construction of circles from sufficient data. Construction of a fourth proportional to three given straight lines and a mean proportional to two given straight lines. Construction of regular figures of 3, 4, 6, or 8 sides in or about a given circle. Construction of a square equal in area to a given polygon.

GEOMETRY—(2) THEORETIC.

Angles at a point.—If a straight line stands on another straight line, the sum of the two angles so formed is equal to two right angles; and the converse.

If two straight lines intersect, the vertically opposite angles are equal.

Parallel straight lines.—When a straight line cuts two other straight lines, if

(i) a pair of alternate angles are equal,

or (ii) a pair of corresponding angles are equal,

or (iii) a pair of interior angles on the same side of the cutting line are together equal to two right angles,

then the two straight lines are parallel; and the converse.

Straight lines which are parallel to the same straight line are parallel to one another.

Triangles and rectilinear figures.—The sum of the angles of a triangle is equal to two right angles.

If the sides of a convex polygon are produced in order, the sum of the angles so formed is equal to four right angles.

If two triangles have two sides of the one equal to two sides of the other, each to each, and also the angles contained by those sides equal, the triangles are congruent.

If two triangles have two angles of the one equal to two angles of the other, each to each, and also one side of the one equal to the corresponding side of the other, the triangles are congruent.

If two sides of a triangle are equal, the angles opposite to these sides are equal; and the converse.

If two triangles have the three sides of the one equal to the three sides of the other, each to each, the triangles are congruent.

If two right-angled triangles have their hypotenuses equal, and one side of the one equal to one side of the other, the triangles are congruent.

If two sides of a triangle are unequal, the greater side has the greater angle opposite to it; and the converse.

Of all the straight lines that can be drawn to a given straight line from a given point outside it, the perpendicular is the shortest.

The opposite sides and angles of a parallelogram are equal; each diagonal bisects the parallelogram; and the diagonals bisect one another.

If there are three or more parallel straight lines, and the intercepts made by them on any straight line that cuts them are equal, then the corresponding intercepts on any other straight line that cuts them are also equal.

Areas.—Parallelograms on the same or equal bases and of the same altitude are equal in area.

Triangles on the same or equal bases and of the same altitude are equal in area.

Equal triangles on the same or equal bases are of the same altitude.

Illustrations and explanations of the geometric theorems corresponding to the following algebraic identities:

$$k(a+b+c+\ldots)=ka+kb+kc+\ldots,$$
$$(a+b)^2=a^2+2ab+b^2,$$
$$(a-b)^2=a^2-2ab+b^2,$$
$$a^2-b^2=(a+b)(a-b).$$

The square on a side of a triangle is greater than, equal to, or less than the sum of the squares on the other two sides, according as the angle contained by those sides is obtuse, right, or acute. The differences in the cases of equality is twice the rectangle contained by one of the two sides and the projection on it of the other.

Loci.—The locus of a point which is equidistant from two fixed points is the perpendicular bisector of the straight line joining the two fixed points.

The locus of a point which is equidistant from two intersecting straight lines consists of the pair of straight lines which bisect the angles between the two given lines.

The circle.—A straight line drawn from the center of a circle to bisect a chord which is not a diameter is at right angles to the chord; conversely, the perpendicular to a chord from the center bisects the chord.

There is one circle, and one only, which passes through three given points not in a straight line.

In equal circles (or, in the same circle) (i) if two arcs subtend equal angles at the centers, they are equal; (ii) conversely, if two arcs are equal, they subtend equal angles at the center.

In equal circles (or, in the same circle) (i) if two chords are equal, they cut off equal arcs; (ii) conversely, if two arcs are equal, the chords of the arcs are equal.

Equal chords of a circle are equidistant from the center; and the converse.

The tangent at any point of a circle and the radius through the point are perpendicular to one another.

If two circles touch, the point of contact lies on the straight line through the centers.

The angle which the arc of a circle subtends at the center is double that which it subtends at any point on the remaining part of the circumference.

Angles in the same segment of a circle are equal; and if the line joining two point subtends equal angles at two other points on the same side of it, the four points lie on a circle.

The angle in a semicircle is a right angle; the angle in a segment greater than a semicircle is less than a right angle; and the angle in a segment less than a semicircle is greater than a right angle.

The opposite angles of any quadrilateral inscribed in a circle are supplementary; and the converse.

If a straight line touch a circle, and from the point of contact a chord be drawn, the angles which this chord makes with the tangent are equal to the angles in the alternate segments.

If two chords of a circle intersect either inside or outside the circle, the rectangle contained by the parts of the one is equal to the rectangle contained by the parts of the other.

Proportion—Similar triangles.—If a straight line is drawn parallel to one side of a triangle, the other two sides are divided proportionally; and the converse.

If two triangles are equiangular their corresponding sides are proportional; and the converse.

If two triangles have one angle of the one equal to one angle of the other and the sides about these equal angles proportional, the triangles are similar.

The internal bisector of an angle of a triangle divides the opposite side internally in the ratio of the sides containing the angle, and likewise the external bisector externally.

The ratio of the areas of similar triangles is equal to the ratio of the squares on corresponding sides.

Elementary solids.—Candidates will be expected to be acquainted with the forms and simple properties of the cube, rectangular block, cylinder, and cone.

The board's preliminary examination or its equivalent is the main avenue of entrance to training college, but it must be borne in mind that a certain percentage of the elementary school teachers in England and Wales do not attend a training college, but may become certificated by passing the necessary examinations. The usual length of the course in the training colleges is two years. The best candidates, however, are usually selected for admission to the departments of education of universities, where they are required to take one or other of the courses leading to a degree, with education as one branch of the required work. A still higher type consists of those students who take a four-year course, the first three being devoted to some course leading to a degree and the last to purely professional work.

THE TRAINING COLLEGES.

The various ways by which a candidate can become a teacher in an elementary school have already been indicated above. It will be necessary here to deal only with the course provided in the two-year training college and in the university departments of education. The two-year training colleges are institutions established by private and mainly religious bodies, and recently in an increasing number by local education authorities. They provide in the two years both academic and professional courses, and, up to the present, have placed more emphasis on the academic than on the purely professional side.

The standards of admission have, so far as mathematics is concerned, already been described. Elementary mathematics is continued as one of the required subjects of study, and here, again, the require-

ments of the final examination conducted by the board of education and leading to the elementary school teachers' certificate, indicate the scope of the subject. Two papers are given in the final examination. The first paper includes arithmetic and algebra, Part I, which all candidates are required to take; a few questions are also set in geometry, but women are not required to answer them unless they desire to obtain distinction. The second paper also contains questions in arithmetic and algebra, Part II, and in geometry; all men students must take this paper, but women only on the conditions just described. The following scheme of study is outlined in the board's regulations for students taking the final examination in 1913 and 1914:

EXAMINATION IN MATHEMATICS FOR ELEMENTARY-SCHOOL TEACHERS' CERTIFICATE.

ARITHMETIC AND ALGEBRA.

Part I.—Arithmetic, excluding Troy weight, apothecaries' weight, true discount, cube root, foreign exchange, and scales of notation. Questions on stocks will not involve a knowledge of "brokerage." Candidates must be acquainted with the principles of the metric system. Algebraic symbols and processes will be generally permitted.

Algebra as far as, and including, simple equations of one unknown, with easy problems leading up to such equations.

Part II.—Quadratic equations of one unknown, simple simultaneous equations of two unknowns and easy simultaneous equations involving the squares of the unknowns and problems leading up to these equations. Arithmetical progressions; geometrical progressions to a finite number of terms; square root, highest common factors, and lowest common multiples, ratio, and proportion. Permutations and combinations. The binomial theorem for positive integral exponents. The use of logarithmic tables.

N. B.—Questions involving graphic methods may be set in both parts, and when such questions are proposed squared paper will be provided.

GEOMETRY.

Every candidate must be provided with a ruler graduated in inches and tenths of an inch, and in centimeters and millimeters, a small set square, a protractor, compasses furnished with a hard pencil point, and a hard pencil.

Figures should be drawn accurately with a hard pencil.

Questions may be set in which the use of the set square or of the protractor is forbidden.

Any proof of a proposition will be accepted which appears to the examiners to form part of a logical order of treatment of the subject. In the proof of theorems and deductions from them, the use of hypothetical constructions is permitted.

Practical geometry.—The following constructions and easy extensions of them: Bisection of angles and of straight lines. Construction of perpendiculars to straight lines. Simple cases of construction from sufficient data of triangles and of quadrilaterals. Construction of parallels to a given straight line. Construction of angles equal to a given angle. Division of straight lines into a given number of equal parts. Construction of a triangle equal in area to a given polygon. Construction of tangents to a circle. Construction of common tangents to two circles. Construction of circumscribed, inscribed, and escribed circles of a triangle. Construction of a segment of a

circle containing an angle of given magnitude. Division of straight lines into parts in any given proportion. Construction of a fourth proportional to three given straight lines and of a mean proportional to two given straight lines. Division of straight lines in extreme and mean ratio. Division of a straight line internally or externally into segments, so that the rectangle under the parts is equal to a given square. Construction of regular polygons in and about circles. Construction of a circle from sufficient data of the following character: (1) Radius given, (2) point on the circle given, (3) contact with a given straight line or circle, (4) contact with a given straight line at a given point. Construction of a rectilinear figure to a specific scale or of specified area, and similar to a given figure. Construction of a square equal in area to a given polygon. (In cases where the validity of a construction is not obvious, candidates may be required to indicate the reasoning by which it is justified.)

Illustration and explanation by means of rectangular figures of the following identities:

$$k(a + b + c + \ldots) = ka + kb + kc + \ldots,$$
$$(a + b)^2 = a^2 + 2ab + b^2,$$
$$(a - b)^2 = a^2 - 2ab + b^2,$$
$$a^2 - b^2 = (a + b)(a - b).$$

Theoretic geometry.—Candidates should be acquainted with the fundamental propositions concerning angles, parallel straight lines, and the congruence of triangles, such as are contained in the substance of Euclid, Book I, Propositions 4–6, 8, 13–16, 18, 19, 26–30, 32. Easy deductions from these theorems will be set, and arithmetical illustrations will be included.

The substance of the theorems contained in Euclid, Book I, Propositions 33–41, 43, 47, 48; and Book III, Propositions 3, 14–16, 18–22, 31, 32, 35–37; Book VI, Propositions 1–8, 19, 20, 33, together with Propositions A and D. Questions upon these theorems, easy deductions from them, and arithmetical illustrations will be included.

In dealing with proportion it may be assumed that all magnitudes of the same kind can be treated as commensurable.

Candidates will be expected to be acquainted with the forms of the cube, the rectangular block, the tetrahedron, the sphere, the cylinder, the wedge, the pyramid, and the cone.

In addition to the ordinary prescribed subjects, students may also offer an examination in 2 optional subjects selected from 20 subjects, including mathematics. The scope of the examinations in optional elementary mathematics is shown in the following syllabus:

Elementary mathematics up to, and including: Geometry of lines, circles, and of the simpler solid bodies, but excluding conic sections.

Coordinate geometry of lines and circles.

Algebra: Progressions. The binomial theorem for positive integers. Logarithms and their use. Probabilities.

Plane trigonometry: The solution of triangles.

Mechanics: Friction. Virtual work. Center of gravity. Simple machines. Motion of pendulums and projectiles. Motion in a circle. Impulsive forces acting on elastic and inelastic particles.

The board of education, however, does not require training colleges to undertake the whole of this syllabus, nor is it intended that the examination shall be a test of the knowledge of the whole of this ground so much as a test of mathematical power.

The professional work is included in a course on principles of teaching and a course of six weeks' practice teaching. The board of education offers a number of suggestive syllabi on principles of teaching which include "Numbers and elementary mathematics; methods and apparatus; practical instruction and its relation to handwork; use of literal symbols and graphs by older children; mensuration and geometrical drawing." Special provision is made for candidates who intend to teach in infants' schools. At the London Day Training College a course of lectures, extending over two terms, is given on general principles of mathematical teaching, with special reference to the more elementary parts of the subject. Demonstration lessons are also given by the members of the staff in the practice schools of the college. The system varies, and it is impossible to make any general statement of the amount of time given to the methods of teaching mathematics. Similarly, in the case of practice teaching, in which each student must engage for six weeks, there is no requirement that mathematics shall be taught; although it is very probable that some time will be given to this subject. But at best the time devoted to practice teaching is limited. It is becoming more usual now for the lecturer in mathematics of the college to include the methods of teaching in his course, to give demonstration lessons, and supervise the practice of the students in their field.

The majority of students who pass through a course of training for the elementary school positions attend the two-year training colleges. Provision is, however, made for three-year courses in training departments closely connected with the universities. The number who can avail themselves of these courses is limited, since, so far as is possible, it is proportioned to the total number of students in the respective universities. The three-year courses include both academic and professional subjects, and students are expected to have met the ordinary requirements for entrance to the universities. Since the students themselves select the group of academic subjects which they will study for their degree, there is no compulsion that mathematics shall be included. Hence the general standard of attainment in this field is the elementary mathematics required for the entrance examinations. A few students, of course, may include mathematics in their course or may even take an honors course, that is, specialize intensively in the subject. It is intended that in future the training of teachers at the universities shall be given in a four-year course—three to be devoted to academic subjects and one to the professional. Among the professional subjects are included principles of education which cover instruction in the methods of teaching all the subjects of a public elementary school. The practical work consists of eight weeks of practice teaching in an elementary school.

The three-year course, therefore, does not provide for higher attainments in mathematics than are found in the examination for the board's certificate; it does, however, afford better opportunities than the two-year course to those students who are interested and desire to carry forward their study of mathematics.

FRANCE.

The training of teachers in France is entirely under the control of the State. There are 85 normal schools for men and 84 for women teachers. Students are admitted to the normal schools by a competitive examination. Candidates for these examinations must possess the *brevet élémentaire*, a certificate which is itself a qualification for teaching in the *écoles maternelles*, *classes enfantines*, and *écoles primaires élémentaires*. Candidates for the *brevet élémentaire* must be 16 years of age. The examination for this certificate consists of questions divided into three series. The mathematical questions are somewhat simple and consist (1) of a question in arithmetic and the metric system and the analytic solution of a problem covering the four operations with integral numbers and fractions and the measurement of surfaces and volumes, and (2) of oral questions in arithmetic and the metric system. The exercise in drawing may, for boys, include geometric drawing of a simple object with ground plan, cross section, and elevation. The examination is based on the following standards, which may serve to indicate also the attainments of the elementary schools:

Review covering principles and theory of arithmetic, and short processes in mental and written work.
Primary numbers; the most important cases of divisibility.
Factors.
Greatest common divisor, interest, accounts, partnerships, averages, etc.
Metric system applied to the measurement of volume and weight.
First notions of bookkeeping.

As a general rule, the examinations show that the reasoning ability of the candidates is defective and indicate no powers of analytic thinking or acquaintance with simplified methods. Considering that the *brevet élémentaire* is accepted as a qualification for appointment as temporary teacher (*stagiaire*) in the schools mentioned above, it is felt that these standards are by no means too high.

The competitive examination for admission to the normal schools requires approximately the same standards. Since 1910 definite syllabi are issued for each school every four years in certain subjects, including mathematics, and it is hoped that as a result the work of the pupils will be less vague and more accurate than hitherto. The candidates come from rural schools, higher primary schools, and the

supplementary courses (*cours complémentaires*). The preparation and attainments of the candidates are accordingly not uniform. It is proposed, therefore, that the following standards be accepted as sufficiently satisfactory:

(*a*) Detailed study of integers and decimals and their application in mental arithmetic.
(*b*) Definitions, theories, and rules of the following operations in written work: Addition, subtraction, and multiplication of integers. Definitions and rules of the divisions of integers and the extraction of the square root.
(*c*) The same for fractions and decimals.
(*d*) Properties of sums, differences, products, and exact quotients. Simplified processes.
(*e*) Theory and rules of mental arithmetic.
(*f*) Characteristics of divisibility by 2, 3, 4, 5, 9, 25. Tests of multiplication and division by the excess of 9's.
(*g*) Metric system.
(*h*) Problems on the four fundamental operations. Percentage. Rules of interest and commercial accounts.
(*i*) Solution of simple numerical equations with one and two unknowns.

In geometry the following outline is suggested:

Experimental study by folding, drawing and measurement, of the chief properties of the following figures: Straight line, plane figures, circumference, angle, triangle, parallelogram, rectangle, rhomboid, square, rectangular parallelepiped, cube, cylinder, cone, and sphere. The use of the rules, square, compasses, protractor, measuring gauge. Rules for measurement of surfaces and simple volumes.

Candidates for the competitive examination must be between the ages of 16 and 18. The normal school course consists of three years. Since 1905 the first two years have been devoted to general instruction and the last year to professional work. The schedule in mathematics is as follows:

Normal school course in mathematics.

	First year.	Second year.	Third year.	
			General.	Professional.
Total hours per week	31	32	22	9
Mathematics	3	4	1	1

There is an examination for promotion at the end of each year. At the end of the second year the students must pass the *brevet supérieur;* at the end of the third year comes the final examination (*l'examen de fin d'études normales*).

The aims of mathematical instruction (including geometric drawing) in the normal schools are declared to be (1) intellectual training through habits of clear and precise thinking, logical analysis, discrimination of the true and false, and accuracy in reasoning; (2) to

furnish a certain amount of useful and definite knowledge and to clarify and complete such knowledge as the students already have; (3) instruction in the methods of teaching arithmetic and geometry.

The course of study for the three years is as follows:

FIRST YEAR.

Practical and mental arithmetic, and algebra (one hour): Algebraic calculation; positive and negative numbers; operations limited to such applications as can be employed in the normal schools. Simple equation. Problems.

Geometry (2 hours): Straight lines, circumference; angles, triangles; rules of equality; parallels; parallelograms; chords and arcs of circles; tangents, measurement of angles; construction.

Straight lines and planes; parallel straight lines and planes; straight lines perpendicular to planes; dihedral angles; perpendicular planes; parallel planes. Introduction to trihedral angles. Definitions of simple polyhedrons, prisms, parallelepiped, pyramid.

Proportional lines. Similar triangles and polygon. Metric properties of triangles and circles. Exercises. Measurement of areas. Regular polygons. Length of circumference. Area of circle. Measurement of volume, parallelepiped, prisms, pyramid.

Methods employed for solution of problems or demonstrations of theorems. Methods of deduction. Analysis and synthesis. Examples.

SECOND YEAR.

Algebra (1 hour): Review. Quadratic equations with one unknown with simple problems. Compound interest and annuities.

Geometry (1 hour): Review. Cylinder, cone, sphere. Elementary properties of solids. Mensuration.

Arithmetic (2 hours): Theoretic arithmetic; proportions; rule of three; partnership; bonds; insurance; discount; average maturity; proportional division; problems of alligation and alloys.

THIRD YEAR.

Surveying (10 hours). Cosmography (10 lessons).

Method of mathematical sciences (mathematical deduction, definitions, axioms and postulates, propositions, examples). Methods of demonstration and examples. Outline of the development and progress of mathematical sciences (3 lessons).

Serious criticisms are brought against the present arrangement of putting algebra in the first year, to be followed by arithmetic in the second year. It is objected that (1) the students, through insufficient knowledge of arithmetic, do not see its connection with algebra, which in any case can not be studied without a knowledge of arithmetical terms; (2) mental work is based largely on such knowledge, while the practical arithmetic lacks the solid foundation which should be laid in the first year; (3) the study of proportional lines and equalities demands a knowledge of ratio and proportion which are not taken up until later. The program of the third year is further criticized as too ambitious; too much is attempted in too little time. It is suggested, for example, that, instead of teaching the history of

mathematical sciences, an introduction might be given to elementary trigonometry, which is at present neglected entirely. The standards of attainment for women are in all cases lower than for men students.

METHODS OF INSTRUCTION.

The regulations recommend that the Socratic method of instruction be used in the normal schools. It is conceded that this recommendation has much in its favor, but it neglects the time element, for much more ground could be covered by the didactic method. Instruction of this character, however, is in agreement with the general aim of the teaching of mathematics. It also enables the teachers to emphasize the characteristic methods of mathematics, of deduction, analysis and synthesis, and induces the students to consider the theory underlying the methods employed and so to discern for themselves the appropriate method in each case. It is admitted, however, that in spite of the prescription of the regulations to emphasize principles and theory, the students are not sufficiently mature to look upon arithmetic as anything but an accumulation of facts and a collection of operations or to recognize the value, use, or connection of these. Hence, while they can perform the four operations, they fail to arrive at their true meaning or at exact definitions and rigorous proofs. The charge is as usual laid at the door of the elementary schools, for too often the instructor is compelled to repeat the work of the lower stage. It is, however, suggested that such repetition can be made valuable if it is done in such a way as to throw new light on the general theory and principles of the subject, the aim suggested in all the regulations since 1881.

On the practical side the regulations recommend an emphasis on mental arithmetic in order to secure readiness and flexibility in working with numbers. Problems are selected from the operations of everyday life—commerce, industry, manufacture, and agriculture. The impossible or improbable exercises of former years are excluded.

The same spirit permeates the suggestions on the teaching of algebra. Long and complicated exercises are to be avoided and those parts of the subjects are to receive attention which can be of some service in other subjects of the normal-school course. At the same time from six to seven hours are to be devoted to the theory of algebra.

Geometry is, so far as possible, made practical, and little attention is given to theory. The subject is correlated with drawing, and the figures that are studied in the latter connection are made the objects of study in the geometry lessons.

The instructor is not limited in any way in the selection of a textbook, but the textbook is only to be used for the study of details.

The work of the classroom is intended to bring out the essential points and to develop the most difficult parts.

At the close of the second year of the normal-school course the students are given an examination in the general academic work of the first two years, leading to the *brevet supérieur*. This examination is required as a qualification for appointment as a director of a *cours complémentaire* or as teacher in such a course or in the higher elementary school. It is also one of the preliminary requirements for the *certificat d'aptitude au professorat des écoles normales* and certificates for teaching special subjects. Candidates for the *brevet supérieur* must be over 18 and hold the *brevet élémentaire*. The examination consists of two parts, written and oral. In the written part, mathematics is grouped with science and the examination consists of (*a*) a problem in arithmetic or geometry, applied to practical operations, (*b*) a question on the theory of arithmetic, and, for men only, (*c*) a question on physics and natural science as applied to hygiene, industry, and agriculture. In the oral part, questions are given on arithmetic and problems to be performed mentally, and for men, on algebra and geometry. It will easily be seen that little can be expected in an examination of this character, and the importance of the subject is still further minimized by the small proportion of the marks allotted to it.

The third year of the course is devoted to the professional preparation of the students. The work includes a study of the principles of education and methods of instruction, with observations of model lessons and practice in an elementary school of the locality or attached to the normal school.[1] The topics studied in connection with the special methods of teaching arithmetic include the following:

General principles governing the teaching of elementary arithmetic.

Study of courses in arithmetic in elementary schools with reference to such special problems as the teaching of fractions or the introduction of decimals.

Knowledge of numbers. Importance of the first 10 numbers.

Arithmetical operations and their introduction at different stages of the elementary school course.

Solution of problems. Development of reasoning ability. Principles underlying mental arithmetic. Critical study of the textbook.

Model and criticism lessons are conducted in connection with this study. The students themselves are expected to do two months of practice work during the year in two periods of a month each. There is no provision for the time to be allotted to the teaching of arithmetic. The practice work is not regarded with much seriousness, since teachers are expected to have at least two years' actual experience before they receive their permanent appointments as *titulaires*.

[1] General method is included under pedagogy and principles of education.

The final examination for the *certificat de fin d'études normales* consists of three parts: (1) A written theme on a pedagogical topic selected from a list, for which two months are allowed; (2) a practice lesson after one hour's preparation; (3) an oral examination with questions on the organization of a class, school programs, methods of instruction, with special reference to the practice lesson.

In general the work of the normal schools is criticized on three grounds, over the first of which the normal school has obviously no control: (1) The poor preparation of the students; (2) too much subject matter is to be covered and too many class periods are required to enable the students to do any genuine independent study; and with reference to mathematics, (3) the proportion of the marks allotted to mathematics in the various examinations is small.

GERMANY.

No country is making greater progress in the training of its teachers than Germany, and in no subject is this more true than in mathemetics. Wedded as Germany, and more particularly Prussia, has been to the immediate demands of professional training, nothing less than a revolution is taking place in the whole conception of the training of teachers.[1] In place of the narrow restrictions which the traditions of 50 years have imposed on the normal school; the realization is gaining ground that a good teacher must be broadly educated, with a liberal grasp of subject matter, and not merely the master of a few tricks of the trade. But the influences of tradition are not to be swept away in a few years. All that can be said for the present is that the tendencies are liberal and the recent reforms in mathematical study are gradually being introduced. It is not intended, however, that the mathematical curriculum of the normal schools shall be more extensive than that of the secondary school, nor again that the students of the normal schools shall be encouraged to proceed to the universities. But, as will be indicated later, while there is progress universally throughout Germany, it is not equally marked in all the States. The smaller States of central Germany, for example, are far more liberal than Prussia or Bavaria; while Saxony may be said to stand midway.

There are, in general, two main types or systems for training teachers—that of Prussia and that of Saxony, the remaining States following more or less closely the one or the other. Hesse and Bavaria until recently stood alone in having a five-year course, but in 1912 the Bavarian course was changed to the usual six years. The chief differ-

[1] The present account deals solely with the training of men; the women who intend to teach in elementary schools in the majority of cases pass through the secondary schools for girls (Höhere Mädchenschulen), but where this is not the case, as in Wurttemberg, the requirements in mathematics are always lower for women than for men.

ences of organization between these two systems are that the Prussian course is divided into two periods—the preparatory course of three years in the Präparandenanstalt and the three-year course in the normal school (Volksschullehrerseminar). The other system provides a course of six years in the same institution (Volksschullehrerseminar). This distinction is slight, however, for the standard of work does not vary, although in Prussia the qualifications of teachers in the preparatory institutions are not as high, for example, as those of the instructors in the normal schools of Saxony. The first five years of the whole course whether given in one or two institutions, are devoted mainly to general academic training, the professional preparation being introduced in the fourth year and given special emphasis in the final year.

The training career of the students begins at the age of 14, when they enter the preparatory course, which, like the normal-school course, is intended solely for future teachers. The majority enter from the elementary schools, the few exceptions coming from the "Real Schools" (Realschulen) and occasionally from a secondary school with full nine-year course. Hesse alone is trying the interesting experiment of providing a one-year professional course for graduates of the nine-year secondary schools.

The students entering the training course are selected on the basis of an entrance examination on the subjects of the elementary schools. The outline prescribed in mathematics by the Prussian Government will serve to indicate the scope of the work:

Arithmetic.—Lower stage: Operations with concrete and abstract numbers from 1 to 100. Middle stage: Similar operations without any limit; averages; factors and reductions; simple rule of three. Upper stage: Fractions and applications to arithmetic of everyday life, and decimals.

So far as possible, it is required that the work in the lower stage should be mental and preparatory with work on the blackboard, and that the problems should be practical and related to the needs of everyday life. At all stages it is desired that emphasis should be placed on clear thinking and correct expression, with ability to do independent, accurate, and rapid work as the ultimate goal.

Geometry.—Lines, angles, triangles, quadrilaterals, regular figures, the circle and its parts, regular solids. To this are added, in graded schools, principles of lines and angles, and equality and similarity of plane figures.

The work in drawing is closely related both to geometry and arithmetic. Algebra has practically disappeared entirely from the elementary school program.

The elementary school programs in arithmetic are very similar in the other States. The larger cities are offering somewhat more extensive courses, plane and solid geometry, for example, being added to the descriptive geometry.

THE TRAINING COURSE.

It will serve for the present purpose to disregard the division between the preparatory institutions and the normal schools which prevails in Prussia, and to consider the six-year course as a unit. The work of the first few years is devoted to a review of the elementary school course and the introduction of algebra. The aim of the whole course may be indicated by several quotations:

Prussia.—The aim is to secure clear comprehension, a readiness in solving problems and ability to impart instruction in arithmetic and geometry in the elementary school. The preparatory institutions serve to lay a sound foundation by reviewing and extending the work of the upper grades of the elementary school.

Saxony.—The aim is to secure accuracy and ability to solve problems in arithmetic and geometry that are appropriate to the elementary and continuation schools, with clear insight into the essence and principles of the methods necessary for professional work; and to secure the possession of such mathematical knowledge as will furnish a grasp of the problems of daily life beyond the standards of the elementary and continuation schools, or as may be essential for more thorough work in other subjects, e. g., physics and geography.

Bavaria.—The chief aims of instruction are the thorough grasp of the relations of number and space, correct understanding of operations and methods in calculations, accuracy, and rapidity in estimating and in solving problems.

Wurttemberg.—The aim is to secure clear insight into the most important principles of elementary mathematics, their relation, application, and significance to other sciences; readiness in the solution of problems.

The time allotted to mathematics (arithmetic, algebra, geometry, and, in some States, trigonometry) shows considerable variation. In some States very little is done in the last, or sixth, year of the course; in general, no new work is then taken up, except where there are elective courses. The following table represents the number of hours per week given to the mathematical subjects in each year of the course:

Number of hours per week in mathematical subjects.

States.	First year.	Second year.	Third year.	Fourth year.	Fifth year.	Sixth year.
Prussia	5	5	5	5	5	1
Saxony	4	4	5	4	4	3
Bavaria	4	4	4	3	3	.....
Wurttemberg	5	5	5	4	2	[1]2
Hesse	6	6	5	5	5	.....
Baden	5	5	5	4	4	4

[1] Elective.

In presenting an outline of the mathematical studies, it will be convenient to give in parallel columns the work of the normal schools in Prussia and Saxony, as the chief representatives of the two types, and to indicate the variations found in other States.

ARITHMETIC AND ALGEBRA.

First year.

Prussia.	*Saxony.*
Fundamental operations with integral numbers, decimals, and vulgar fractions; averages; percentage; profit and loss; taxes and customs; alloys; approximations.	Operations with vulgar and decimal fractions; practical applications.

Second year.

Interest; profit and loss; discount; social arithmetic; alligation; insurance, especially workmen's compensation; notes and bills.	The four fundamental operations in algebra. Extension of the idea of number to negative and compound numbers.

Third year.

Introduction to algebra; fundamental operations with integral numbers; equations of the first degree with one unknown.	Fractions, factors; proportions; equations of the first dergee with one unknown quantity; practical problems solved by means of equations and proportions; powers.

Fourth year.

Powers; roots; logarithms; equations of the first degree with several unknowns.	Roots; extension of the idea of numbers to irrational and imaginary numbers; equations of the first degree with two or more unknown quantities: practical problems in arithmetic; introduction to logarithms.

Fifth year.

Equations of the second degree; arithmetical and geometric progressions; compound interest and annuities.	Logarithms; equations of the second degree; progressions; compound interest and annuities.

Sixth year.

Methods of instruction in arithmetic and geometry.	Continuation of compound interest and annuities review; discussion of problems of method.

GEOMETRY.

First year.

Lines, angles, and triangles. Theory.	Plane geometry; fundamental ideas; straight lines; the circle in general; angles and triangles.

Second year.

Parallelograms; trapezoid; regular polygons; circle.	Continuation of triangles; quadrilaterals and polygons; elements of the theory of the circle; constructions by geometric analysis.

Third year.

Equality of figures; areas of figures of equal size, regular polygons and circles.	Comparison of areas; measurement of lines and surfaces; proportionality of lines; theory of equality.

Fourth year.

Proportionality of straight lines and similarity of figures; solid geometry.	Proportional lines about a circle; constructions by algebraic analysis; measurement of lines, regular figures, and circles.

Fifth year.

Solid geometry; constructions of algebraic expressions; trigonometric functions; mensuration of plane figures.	Plane trigonometry; solid geometry.

Sixth year.

Arithmetic and geometry included in the one hour per week devoted to the methods of instruction in these subjects.	Conclusion of solid geometry.

These programs form the core of the mathematical studies throughout the German normal schools. More extended courses are found in some of the normal schools of the smaller States of central Germany and of Wurttemberg. Thus the use of graphs has been introduced as early as the second year at Sondershausen and Cöthen and in the third year in Wurttemberg. At Hildburghausen and Gotha algebra is carried up to quadratic equations; in Wurttemberg the elective course in the sixth year includes the binomial theorem and some study of functions. In geometry Cöthen introduces the theory of projections in the third year, and solid geometry is begun in Wurttemberg in the fourth year. Trigonometry finds a place in the programs of Coburg, Greiz, Cöthen, and Sondershausen in the fourth year, while spherical trigonometry is found in the fourth-year course at Cöthen, in the fifth year in Wurttemberg, and in the sixth year in Baden, with applications to geography and astronomy. Surveying with practical work in the open has been introduced in many schools, but it is objected that too many students are required merely to look on while the few gain the practical experience.

The suggestions and recommendations of the *Deutscher Ausschuss für den mathematischen und naturwissenschaftlichen Unterricht* will indicate at once the criticisms that are leveled against the work of the normal schools and the direction in which the reformers are moving. In its *Vorschläge für der mathematischen, naturwissenschaftlichen und erdkundlichen Unterricht an Lehrerseminarien* the committee sets up the following theses: (1) The mathematical course should be six, even seven, years in length. (2) Preparation for the teaching profession covers both academic and professional training; each is to be treated separately; the professional training should come at the close of the academic. (3) The six-year course should be given in one institution under one director and one staff with the same spirit throughout. (4) The normal school should in every way approximate more closely to the secondary schools, but should not attempt to prepare for the university. (5) Those subjects which are not of great value to all students should be limited in treatment, as well as those which can not be made up with the help of books, and more emphasis should be placed on training in the methods of independent study, the use of books, apparatus, etc., which are as a rule not accessible to the teacher in a small elementary school. (6) The students should be taught methods of study, trained in habits of thinking, and given a grasp of the broader phases of education rather than be crammed in subject matter and methods of the elementary school. (7) The normal school staff should be in a position to give instruction in all stages of the school, with full mastery of the subject. (8) Opportunity should be afforded in the last year of the course for specialization in some group of subjects or some special subject.

The committee recommends five hours a week in the first five years and two hours a week in the last, for mathematics. The problem at present is to secure not only logical training, ability to handle numbers, and preparation for teaching arithmetic and mensuration, but also adaptation to the problems of the modern school. Greater emphasis is necessary on the thought content of mathematics and its connection with the actual facts and needs of practical life. Ability must be developed to think mathematically about the phenomena of the world and the relation of mathematics to life, and to develop the idea of change and function in the most general sense. In general the standard set up in the Meran proposals for the secondary schools should be carried over to the normal schools with the addition that the future calling of the teacher must be borne in mind. The teacher, however, must be in a position to take a broad view of his subject from a higher standpoint. The Prussian program, for example, should be supplemented by the addition of spherical trigonometry, with application to mathematical geography and astronomy, and a little of conic sections. The study of complex numbers and infinitesimal calculus should be offered as an elective only. Algebra could well be begun in the first year. Arithmetic should deal with the problems of family, community, and State management, and economic life in general, with the emphasis as much on content as on arithmetical ability. The five hours of the course should be divided so that two hours a week are given to algebra, two hours to geometry, and one hour to arithmetic, but the different branches should be taught by one teacher.

COURSE IN MATHEMATICS RECOMMENDED BY THE COMMITTEE.

FIRST YEAR.

Arithmetic: Problems of household management and the vocations with applications of the rule of three and percentage.

Algebra: Algebraic formulas for the fundamental operations with integral and fractional numbers as an introduction to general arithmetic. Concrete representation of numbers by lines. Evaluation of algebraic expressions. Numerical solution of simple equations with one unknown. The use of brackets and their application to mental arithmetic and abbreviated methods.

Geometry.—Straight lines and angles. Triangles and quadrilaterals, particularly parallelograms, trapezoid, and deltoid (motion, interdependence of the parts, symmetry, congruence, area). Measurement and plotting of lines and angles in the field. Geometric drawing in connection with field observations and the construction of simple triangles and quadrilaterals.

SECOND YEAR.

Arithmetic: Community and State management.

Algebra: The idea of relative magnitudes with practical examples, concretely illustrated by directed numerical line segments. Rules for calculation with relative magnitudes. Simple polynomials. Theory of proportion in connection with frac-

tions. Pure and applied equations of the first degree with one or several unknowns. Simple inequalities.

Geometry.—Chief principles of the circle. Equivalence of figures bounded by straight lines. Computation of the areas of such figures and their transformation into equivalent figures. Approximate calculation of figures bounded by curved lines. Such constructions as are closely connected with the course. Applications of the theory of triangles and quadrilaterals to simple problems in surveying and measurement of altitudes in the field. Geometric drawing of the circle and straight line in ornamental design. Drawing of plane figures. Examples from surveying and technical sciences.

THIRD YEAR.

Arithmetic: The money market and international exchange. The decimal system. The simplest rules of divisibility. Decimal fractions. Approximations in working with fixed numbers.

Algebra: Graphic representation to illustrate ordinary relations. Graphic representations of linear functions and their application to the solution of equations. Powers with positive integral exponents. Graphic representations of the functions $y=ax^n$ (parabolic curves), $n=2$, 3, 4. Powers with negative integral exponents. Graphic representation of the functions $y=ax^{-n}$ (hyperbolic curves), $n=1$ *and* 2. Roots.

Geometry.—Theory of similarity, and the circle. Measurement of circle. Practical exercises in mensuration. Geometric drawing to scale, especially of sketches made in the field by the students; drawing of curves and use of squared paper.

FOURTH YEAR.

Arithmetic.—Selected parts of commercial arithmetic.

Algebra.—Equations of the second degree with one unknown. Relation between coefficients and roots. Graphic representation of an expression of the second degree depending on a varying quantity. Graphic solution of equations of the second degree with one unknown, also by the intersection of a fixed parabola and a movable line, or of a fixed line and a movable circle. Equations of the second degree with two unknowns in simple examples, to be solved numerically and graphically.

Geometry.—Simplest propositions about lines and planes in space; plane representations and measurement of solids. Conic sections as plane sections of the right circular cone. Geometric drawing; introduction to descriptive geometry. Representation of simple solids in perspective, as well as ground plan and elevation. Plane sections of simple solids. Plane diagrams of the surface of such solids. Construction of ellipses. Spirals.

FIFTH YEAR.

Arithmetic.—Simplest ideas of insurance. Review of elementary school arithmetic, with observations on method.

Algebra.—Extension of the idea of powers. The function $y=a^x$ and its graphic representation. Idea and use of logarithms; simple method of calculating logarithms; representation of logarithmic functions. Theory and use of the slide rule. Arithmetical progressions of the first order. Geometric progressions and their application to compound interest and annuities. Comprehensive review of the extension of numbers to irrational numbers.

Geometry.—Trigonometry in connection with constructive plane geometry. Graphic representation and calculation of trigonometric functions. Application of the measurement of triangles to practical problems in connection with independent measurement by the students in the field. Sine and cosine in spherical trigonometry and their application to fundamental problems of mathematical geography and astronomy;

determination of time and position. Comprehensive review of the scientific structure of geometry. Geometric drawing as in third year, with the simplest penetrations and their practical applications; shading.

SIXTH YEAR.

Comprehensive review of the functions studied, with examples from geometry and physics, especially mechanics.

Geometry.—Constructive treatment of conic sections, with indications of their analytic representation.

With reference to the method of instruction in the normal schools the committee emphasizes the need of reform. The pupils should be discouraged from mechanical work and memorization. In place of the dogmatic and didactic teaching, which is a characteristic of the Prussian schools in particular, more encouragement should be given to independent and experimental work, especially in geometry. Great importance should be attached to oral expression and mental arithmetic. The students should be trained to construct their own problems, and should be restricted to problems of a practical character rather than the mere elaboration of fictitious exercises. More attention should be given to graphs and graphic representation, and to some extent to the history of important theories and principles. In the final year the instructor should be given free scope and should aim to give the students some acquaintance with the problems of higher mathematics and an insight into mathematical method to serve as a preparation for further study.

In the training of the students in the methods of the teaching, two principal types are again found. A number of States, following the practice of Prussia, assign instruction in methods of each subject to the specialist. Thus, while one teacher gives the general method and principles of teaching, the teacher of mathematics has charge of the instruction in the special methods of his subject. In the second type one teacher has charge of all the purely pedagogic work of the school and gives courses in both general and special methods. It is felt, however, that in both types when methods courses are handled by two instructors, there may be not only an absence of uniformity, but even that contradictory principles may be enunciated. This danger is all the greater in those States in which the specialist in subject matter has had no experience in the elementary school, while on the other hand it is feared that too often the special teacher of method may, for example, be inadequately trained in mathematics. To avoid these dangers a system of cooperation has been adopted in Saxony between the specialist and the teacher of general method. While the specialist throughout the course aims to show the development and interconnection of the different parts of the subject with special reference to the elementary

school, the method teacher in a brief course of 15 hours gives a historical outline of the special method and discusses the aim and problems of mathematical instruction and the arrangement and distribution of the material for the elementary schools. On this subject the committee already referred to recommends that the course on method should include the methods of teaching in all grades of the elementary schools, a critical study of methods and theories, and an examination of the most usual apparatus and local textbooks. To give a comprehensive view of the subject, the course should not omit reference to the methods both of the kindergarten and of the secondary schools, while some assistance and advice should be given to the students for their own further study.

The permanent appointment of German teachers can only be secured by passing a second examination for which candidates become eligible as a rule two years after they have passed the first examination at the close of their normal school career. The second examination, however, is rather of a practical or professional character and is intended to test the ability of the candidate as a teacher rather than as a student. While a test is, as a rule, given in a special elective subject, it is not of so much importance as professional skill. Since the first appointments are in most cases in rural districts, the teachers are thrown on their own resources and any study that they undertake must necessarily be done independently and without guidance. Bavaria has instituted district extension courses to prepare for the second examination, but this practice appears to be isolated. A stimulus is afforded to further study by the examinations for promotion to principalships or positions in the middle schools and normal schools. Increasing opportunities are being offered, as in Saxony, Hesse, Wurttemberg, and Bavaria, to students who acquit themselves excellently in the final examination at the normal schools to proceed to the universities, but as students who do so rarely return to the elementary schools, a discussion of these facilities and examinations is not appropriate here.

HUNGARY.

The Hungarian normal schools are maintained by the State or the different religious denominations, schools of the latter type being in the majority. Separate schools exist for the training of men and women. All the schools follow more or less closely the program prescribed by the State. These have been recently revised (1911) and brought into closer agreement with modern reform movements. The normal schools furnish a four-year course to candidates who are admitted at the age of 14 from the lower classes of the secondary schools and the intermediate schools (Bürgerschulen).

The aim of instruction in mathematics is declared to be—

the study of algebraic foundations of the common arithmetical operations, the knowledge and accurate application of practical arithmetical problems taken from daily life, and the study of the most important principles and the simplest practical application of elementary geometry, with particular attention to the needs of elementary school instruction.

The following outline indicates the scope of the course in mathematics:

FIRST YEAR (four hours).

Arithmetic and elementary algebra: Introduction to the nomenclature of algebra; fundamental operations of algebra. Negative numbers, the number system; the fundamental operations in the decimal system. Divisibility of integral numbers. Fundamental operations with common fractions and decimals. Simple equations with one unknown; graphic equations with two or three unknowns.

Geometry: Measurement of length and angles. Angles. Parallel straight lines. The chief properties of the triangle, quadrilateral, polygon, and circle.

SECOND YEAR (three hours).

Arithmetic and elementary algebra: Powers and roots. The second and third power of algebraic and decimal expressions. Fractional numbers; pure and mixed quadratic equations with one unknown; imaginary and complex numbers.

Geometry: Principles of equality. Problems of construction with reference to the triangle, quadrilateral, and regular polygons. Similarity of figures; similar triangles; the theorem of Pythagoras. Inscribed and circumscribed triangles and quadrilaterals. Calculation of the side of an equilateral triangle and the regular hexagon. The circumference. Calculation of area of these figures.

THIRD YEAR (two hours).

Arithmetic and elementary algebra: Proportion; rule of three and proportional division. Percentage in commercial and statistical applications; coinage; alloys; national and foreign money systems.

Geometry: Analytic geometry of the point, straight line, and triangle, with corresponding development of the prerequisite algebraic knowledge, based upon the function concept and graphic methods.

Method: Discussion and explanations of the syllabus and suggestions for teaching arithmetic and geometry in the elementary schools, including a consideration of manuals, textbooks, and apparatus.

FOURTH YEAR (three hours).

Arithmetic and elementary algebra: Simple interest and discount. Arithmetical and geometric progressions. Principles of compound interest (savings banks, annuities, redemption of loans); compound-interest tables. The most important features of commercial practice and exchange.

Geometry: Relation of lines and planes in space. Simple exercises in leveling. Lines of equal height. Reading of topographic, especially military, charts; simple exercises in surveying. Construction, surface, and volume of the prisms, cylinder, pyramid, cone, and conic sections, and the sphere. Definition and construction of the ellipse, parabola, and hyperbola.

The chief criticism that is made against this syllabus is on the ground of arrangement. While it is thought that the addition of

logarithms and the elements of plane trigonometry would be a great gain, it is felt that this is the only criticism that can be made on the ground of subject matter. Considerable improvement could, however, be made if all the arithmetic were completed as a foundation for the study of principles and of algebra, and if the algebra and geometry were more closely correlated.

The professional study in the normal schools begins with the observation of instructions in the model school from the third year on. Practice teaching is commenced in the third year, but is not fully developed until the fourth year, when each student teaches six hours a week.

ITALY.

The training of teachers for Italian elementary schools is provided in normal schools, which are classed with secondary schools. The normal schools are organized on a three-year basis, and until recently boys and girls were taught in separate institutions. Coeducational schools have, however, sprung up within the last few years. Since the normal schools can not supply the demand for teachers created by the establishment of new elementary schools and the extension of the elementary-school period, special two-year courses (*corsi magistrali*) have been established for students who have passed through the *ginnasi*, which give a five-year secondary-school course. The *corsi magistrali* are mainly of a professional character.

Students are admitted to the normal schools at about the age of 15 from higher elementary or intermediate schools with three-year courses beyond the elementary schools—*scuole tecniche* for boys and *scuole complementari* for girls. Admission is by certificate from these schools; entrance examinations are given only in special cases. Each institution is equipped with a complete elementary school for practice and observation, while the girls' normal schools have, in addition, kindergartens and complementary schools attached to them.

Normal-school instructors must be graduates of universities and are appointed on the basis of a competitive examination. In the boys' normal school the same instructor has charge of mathematics, physics, and natural sciences; in the girls' schools these subjects are in different hands, but the instructor of mathematics is also required to teach in the complementary school.

A striking feature of the mathematical program, which is given below, is the omission of arithmetic in the first year of the course and the introduction of algebra in its place. Special attention is also given to method in the second year, a survival probably from

the time when a teacher's lower certificate could be obtained at the close of that year. The program is as follows:

FIRST YEAR (three hours boys, two hours girls).

Algebra: Introductory ideas. The four operations with integral quantities; equations of the first degree with one unknown. Square and cube roots with approximations.

Geometry: Definitions and introduction to plane geometry. Angles, triangles, and quadrilaterals. Regular and irregular polygons. Circle. Equality of polygons. Measurement of straight lines, angles, polygons, and circles. Equality of plane figures and principal theorems concerning plane figures.

SECOND YEAR (two hours).

Arithmetic: Magnitudes; numbers; numeration; analysis of the four operations. Methods of teaching numbers and the four operations in the elementary schools. Ratio and proportion.

Geometry: Proportional lines and similar polygons. Methods of teaching the notions of plane geometry in the elementary schools.

Bookkeeping: Inventory; trial balance; accounts rendered.

THIRD YEAR (two hours).

Arithmetic: Magnitudes in direct and inverse ratio; rule of three, simple and compound; solution of related problems by proportion and reduction to unity. Methods of teaching the rule of three in the elementary schools.

Geometry: Straight lines and surfaces and their relative position in space. Dihedral and polyhedral angles; polyhedrons; prisms, cylinder, pyramid, cone, sphere. Fundamental notions of congruence and similarity. Methods of teaching solid geometry and the metric system in elementary schools.

Bookkeeping: Daybook; ledger; cashbook.

This is by no means an ambitious program. Its critics object that the time allotted to it is insufficient, and that the arrangement is illogical, since much of the early work depends on a knowledge of matter which is at present postponed to a later year. Furthermore, the students under the present arrangement fail to obtain a comprehensive and systematic view of the methods of instruction and of the program of the elementary schools. The regulations prescribe that arithmetic must be taught with scientific rigor, while instruction in geometry is to be deductive in the first year and inductive in the second and third—a distinction which the reformers regard as vague and meaningless.

The normal schools have been under fire for some time. It is felt that the course of three years is too short a time in which to train cultured and efficient teachers. The practice of crowding the academic and cultural subjects and the professional subjects together is not only dangerous, but results in inefficiency. Demands are now being made for a longer course; for a separation of the two main purposes of the normal schools—the general and professional training; for better coordination between the various subjects; and for a reorganization of the program to the exclusion of the superfluous and an emphasis on the new elements demanded by modern culture.

RUSSIA.

The Russian public elementary school system provides for three types of schools: The ungraded elementary school with a course of three years, gradually being extended to four years, receiving pupils at the age of 7; the two-class elementary school which gives a five-year course, divided into two sections of three and two years, and which receives pupils at the age of 7; and the municipal elementary school, which in general gives a four-year course to pupils coming from the elementary school at the age of 10 or 11. The first two types of school are taught by a single teacher. The mathematical work of these schools is necessarily simple. In the elementary schools arithmetic only is taught, with the briefest outlines of geometry. The arithmetic here covers the four operations with abstract and concrete numbers and simple fractions, and geometry includes simple ideas of form and measurement. Five hours a week for the whole school are allotted to the subject. In the elementary schools with two classes the program is somewhat extended, but there is much variation both in selection of subject matter and in the time allotment, which ranges from three to six hours for arithmetic and from one to three hours for geometry. Arithmetic is carried up to common fractions, decimals, problems in the rule of three, alligation, alloys, partnership, and interest. Instruction in geometry is limited to a concrete basis.

The mathematical work in the municipal elementary schools is still organized on the basis of regulations issued in 1877, and includes arithmetic, geometry, and algebra. Arithmetic, to which are devoted from 8 to 16 hours a week in all the classes together, covers recurring decimals and proportions. Geometry, from 6 to 9 hours a week, is restricted to a fairly complete study of the problems occurring in plane geometry. The work in algebra, from 2 to 4 hours a week, is carried as far as simple equations.

It is obvious from the above that the preparation of students who enter the normal schools is very slight. Two types of normal schools are maintained, corresponding to the two main types of elementary schools. The normal seminaries are intended for the training of teachers (men and women) for the lower elementary schools—the ungraded and the two-class schools—and the normal institutes for the training of teachers (men only) for the municipal schools. Students are admitted to these institutions on the basis of a competitive examination. Candidates for the normal seminaries are drawn from among the more able pupils of the two-class schools, who, on completing their course, usually remain for review and practical work under the direction of their teachers until they reach the eligible age of 14. Candidates for admission to the normal institutes must have

completed the course of a municipal elementary school and be 16 years of age.

The length of the normal seminary course is three years, but efforts are successfully being made to extend it to four years. The aim of the mathematical course is closely adjusted to the demands of the future career of the students, i. e., the curriculum of the lower elementary schools. The course is as follows:

(1) Theoretic arithmetic with solution of problems. Five to eight hours a week are devoted to the subject according to the previous preparation of the students.

(2) Principles of algebra. Here there is much divergence, both in standards, which vary from simple equations to quadratic equations, progressions, and logarithms, and in time which ranges from one to five hours a week.

(3) Six to eight hours a week are given to geometry, the program in which is identical with that of the secondary schools (given below) with the exception that more attention is given to surveying.

The two upper classes have instruction in the methods of teaching arithmetic and geometry, one hour a week being given to each. The graduating class has practice teaching in a two-class school.

The aim of the work of the normal institutes is defined in the same way as that of the normal seminaries. The standards are accordingly higher, both for this reason and because the preparation of the students has been more extensive. The following is an outline of the mathematical course:

(1) Theory of arithmetic (one-half to three hours a week).

(2) Algebra up to binomial theorem, recurring decimals, etc. (seven to eight hours).

(3) Geometry (four to five hours) follows the program of the secondary schools, viz: Straight lines; angles; parallels; triangles, quadrilaterals and polygons in general; circumference. Fundamental problems of construction and numerical examples. Measurement of straight lines and angles. Proportionality of segments. Similarity of triangles and polygons. Numerical relation of the sides of a triangle. Regular polygons. Limits. Length of circumference and calculation of it. Simple problems of constructions and numerical applications to each figure studied. Relative position of lines and planes in space. Dihedral and polyhedral angles.

Regular polyhedrons—areas and volume of prisms and pyramids—round bodies—cylinder, cone, and sphere, and calculation of their area and volume.

(4) Plane trigonometry with a little of spherical trigonometry (one or two hours). This subject, however, is not prescribed and may be introduced optionally.

The upper classes have instruction in methods of teaching mathematics in the municipal elementary schools, to which the graduating class is also assigned for practice teaching.

The regulations recommend that the method of teaching in the normal seminaries should be didactic without neglecting, however, the importance of developing habits of independent work. In the normal institutes the method of the recitation is employed with drill reviews about every term. The textbooks play a secondary part and are used merely for purposes of reference. The same books are used in the secondary schools.

The staffs of the normal seminaries are recruited from among university graduates and in mathematics from those who have graduated in the faculty of science. But since the supply of these is short, graduates of the normal institutes are not infrequently appointed. In the normal institutes the instructors are exclusively university graduates. It is objected that such training is not adequate qualification for normal school positions, since the university graduates have no acquaintance whatever with the elementary schools and have had no pedagogic training, while the courses of the normal schools are not definitely prescribed. It is claimed, however, that these disadvantages are offset by the introduction of a broad and scholarly spirit into the training of the future teachers.

Since the supply of normal school graduates is small, candidates for teaching positions are also accepted who pass examinations in the theory and practice of the work of the elementary schools without any special training in one type or other of the normal schools.

SWEDEN.

The system of normal schools of Sweden belongs to that class which limits itself somewhat closely to the actual needs of the future teacher. Two types of schools are maintained—the regular four-year normal school for men and women, maintained by the State, and institutions for training infant school teachers (Kleinschulseminar), attended almost entirely by women, and giving a course varying in duration from one to two years.

Candidates for admission to the normal schools must be between 16 and 26 and must pass an entrance examination on the subjects of the elementary school curriculum. Since the number of candidates is usually greater than the number of vacancies, this examination is practically competitive. Preparatory institutions have been established to cram students for these examinations. Some of the students are graduates of "Real schools." Students from the universities who desire to teach in elementary schools are admitted to short courses, usually of one year's duration. The instruction in the normal schools is given by university-trained specialists who have the same qualifications as candidates for teaching appointments in secondary schools.

The mathematical course of the normal school is at present still unsatisfactory, for the reason that it does not furnish a much more extensive course than that found in elementary schools. The regulations bearing on the subjects date back to 1886, with some amendments in 1894, and do not contemplate an extensive course. Their prescriptions, however, are regarded as minimal, and several normal schools have adopted broader standards. Thus they have intro-

duced algebra up to arithmetical and geometric progressions, geometry of as high a standard as that taught in the secondary schools, and a little trigonometry, branches which are not required by the regulations. Four hours a week are devoted to mathematics in the first three years and two hours in the fourth. Professional work is begun in the second year with observation and practice teaching under the direction of the specialist instructors.

The following general outline of the course in mathematics represents the letter rather than the spirit of the present day; the latter is being strongly influenced by modern reform tendencies:

Exercises to attain speed and accuracy in handling the four operations with integral numbers and fractions, with applications and problems on the most important practical needs; the knowledge of theory underlying these operations; the theory of numerical equations of the first degree with one unknown; mental arithmetic, especially with the numbers from 1 to 100; extraction of square and cube root; and introduction to bookkeeping.

Principles of geometric bodies, the general properties of the most important plane figures, with the method of their measurement and calculation.

The institutions for training infant-school teachers (Kleinschulseminar) are governed by the regulations of 1897. The scope of the mathematical course is even more restricted than of that given above. It includes: Speed in the four operations with integral numbers and fractions, and their application to simple practical problems with exercises in mental arithmetic.

While geometry is not referred to in the regulations, it has been introduced in several institutions.

The whole question of the normal-school curriculum has been under discussion for several years, and it is highly probable that changes will be made that will bring the curriculum into conformity with the demands of recent reform movements.

SWITZERLAND.

The educational system of Switzerland presents an interesting parallel with that of the United States. So far as the training of teachers is concerned, the system is entirely local, though slight aid is given by the Federal Government. Since, as in the United States there is a great variety of students without the minimum requirements usually established under systems that are centrally organized, it is practically impossible to present a comprehensive account of the work of the schools.

The normal schools are public and private; some are independent institutions, others are departments of secondary or "middle" schools; a few are coeducational; others admit only one sex. In a few instances special short courses of two or three semesters are

organized for graduates of the "Real schools" and gymnasiums, but as a general rule the normal schools are intended for students entering between the ages of 14 and 16 from a higher elementary school (Sekundarschule). With a few exceptions the duration of the courses is four years. The divergence of standards of attainment is very great; some institutions offer the same standard of work as the gymnasiums, while others hardly surpass those of the higher elementary schools. In the best schools the mathematical subjects include arithmetic and algebra, geometry, surveying, theory of projections, commercial arithmetic and bookkeeping, and mathematical drawing. The total number of hours devoted to these subjects ranges from 10 to 28 a week, with an average of about 19 for the four classes.

At least three types of courses can be distinguished: (1) Those limited to a review of the elementary school courses and instruction in method; (2) those which aim to give a deeper and better command of the mathematical work of the elementary, higher elementary, and "middle" (secondary) schools with an emphasis on practical and mental arithmetic—the idea of number, numeration, common and decimal fractions, and general insight into the content side of practical arithmetic; (3) those in which mathematics is taught as in the gymnasiums as a cultural subject with training in mathematical thinking.

In general, the courses in geometry confine themselves to the study of surface and volume. But attempts are being made to extend this and to include the theory of projections, conic sections, mathematical geography, and physics.

The methods of instruction naturally vary with the scope of the courses, so that while drill is emphasized in the lower stage the higher stage introduces a scientific treatment of the subject.

Under these circumstances it will perhaps be most useful for the purpose in hand to present an outline of one of the fullest courses, premising, however, that this represents the goal to which most of the normal institutions (for men at any rate) aspire rather than conditions widely prevalent. The course given is that of the normal school of the Canton of Zurich, at Kusnacht.

Aim of mathematics course: To give training in clear comprehension of space and number in the use of critical and logical processes of numerical and measurable quantities; to develop ability in terse, clear, and logical expression; to train in the recognition of the quantitative relations and problems of practical life, nature, and technology, and to solve these with insight and accuracy by calculation and drawing.

FIRST YEAR (five hours).

(*a*) *Arithmetic:* Review of rule of three and simple bookkeeping; profit and cost accounts. Mental arithmetic. Short methods. Ratio and proportion.

(*b*) *General arithmetic:* Operations of the first and second stages with general numbers; rational numbers; powers with integral exponents.

(*c*) *Algebra:* Equations of the first degree with one unknown. Problems.

(*d*) *Plane geometry:* Review of ideas of space and the establishment of fundamental ideas. Lines, circle; measurement of distance and angles; parallels and central and axial symmetry; congruence. Translation and rotation. Construction of triangles. Principles of general and special quadrilaterals, secants, tangents, and circumscribed triangles. Comparison, computation, and measurement of the areas of triangles and polygons.

SECOND YEAR (six hours).

(*a*) *Bookkeeping:* Accounts current with payment of interest and use of interest tables; elements of double entry limited to simple commercial processes.

(*b*) *Arithmetic:* Extraction of square and cube root. Irrational numbers. General involution. Prime numbers.

(*c*) *Algebra:* Equations of first degree with several unknowns.

(*d*) *Plane geometry:* Similarity of plane figures. Scale drawing. Regular polygons and measurement of circle. Construction of simple algebraic expressions. Line and circle as loci. Methods of solving problems in planimetric construction. Practical exercises in use of simple instruments. Application to surveying of small plats of land.

(*e*) *Trigonometry:* Definition of the functions of acute angles; study of right angles and equilateral triangles. Problems with use of numerical values of functions.

THIRD YEAR (five or six hours).

(*a*) *Arithmetic:* Theory of common logarithms. Arithmetical and geometric progressions. Compound interest and annuities.

(*b*) *Algebra:* Solution and theory of equation of the second degree with one unknown.

(*c*) *Trigonometry:* Principles of obtuse angles, triangle and geometric application. Continuation of definitions. Problems, especially of triangulation. Physics and solid geometry. General definitions and chief principles of goniometry. Construction of trigonometric expressions and examples of the trigonometric analysis of geometric constructions.

(*d*) *Solid geometry:* Relative positions of objects in space, and especially parallels and perpendiculars. The idea of projections, measurement of distances and space, angles, symmetry. Uniquely determined construction of trihedral and polyhedral angles. The sum of the sides and angles of convex polyhedrons. Euler's theorem on polyhedrons and regular polyhedrons.

(*e*) *Theory of projections:* Inclined parallel projections as illustrative material. Representation of points, straight lines, plane polygons, and simple objects in ground plan and elevation. Folding. The ellipse as projection of a circle and its focal determination.

FOURTH YEAR (six hours).

(*a*) *Arithmetic:* The principal notions of permutations. Elements of probability applied to insurance.

(*b*) *Coordinate geometry:* Rectangular and polar coordinates in plane and space. Graphic representation of the simplest functions of one variable. Graphic solution of numerical equations.

(*c*) *Solid geometry:* The sphere and its related surfaces. Plane sections of these surfaces. Spherical triangles. Areas and volume of simple solids and their parts. Application to determination of weight.

(*d*) *Theory of projections:* Representation of polyhedra and elementary curved solids in ground plan and elevation. Plane diagrams of the surfaces of solids. Making of models. The chief map projections. Simple problems of intersection with appli-

cation to shading. Fundamental ideas of geometric perspective, especially of the vanishing point and foreshortening.

(*e*) *Methodic and historical survey* in the field of pure and applied arithmetic and the study of forms in the elementary school.

The certification of the students as teachers depends on a final examination which consists of two parts, general-academic and professional. Both parts of the examination may be taken at the same time, or the professional examination in theory and practice of teaching may be postponed for one or two years during which the candidates are expected to teach in an elementary school. No provision is made, however, for the supervision of the candidates during this period.

UNITED STATES.

In dealing with educational topics concerning the United States it is difficult to do more than present a general picture of tendencies, since the standards in different parts of the country vary so greatly and since they are at different stages in their development. But this variety is perhaps no greater than in Switzerland and, in the matter of training of teachers, than in England. In some States the qualifications demanded of teachers in elementary schools are still no higher than the attainments of one or two years beyond the elementary schools, while at the other end of the scale teachers may have the qualifications of college graduates. The most general standard may, however, be said to be graduation from high school, with two years of normal school training. The mathematical attainments will thus have been acquired in the eight grades of an elementary school, four years of high school, and two years of normal school.

The work of the elementary grades covers the four fundamental operations, fractions, decimals, and percentage, with business applications. Mensuration and algebra are included in some systems in the eighth grade. There is more uniformity in the first six grades than in the last two. The variations in the seventh and eighth grades are due not only to differences in amount of subject matter taught, but also to the employment of the department system. Departmental teaching in these grades is quite common in the larger school systems and is being extended as rapidly as circumstances permit. Under this system teachers are employed who are not only more experienced, but have had special training for the work and are frequently college graduates. Where algebra and geometry are not introduced, more intensive work is given in the practical and business applications of arithmetic. There is a tendency in the better schools to emphasize thoroughness and practical utility. In the schools where algebra is taught, there is again some variation in scope and method; some courses are merely based on high-school texts; in

others the subject is introduced as part of the work in arithmetic. The amount of geometry taught in the elementary schools has in recent years tended to decrease. The mensuration of geometric figures has always been included in arithmetic textbooks. The reform movement in geometry, however, while not widespread, aims to cultivate habits of geometric study and to train such powers of observation and generalization as pertain to geometric data.

In the high schools the curriculum in mathematics is determined in general by the admission requirements of the colleges, especially in those States which have a complete and State-wide organization of education, crowned by the university. This is true, also, in other States and even in the smaller communities, where few, if any, of the pupils plan to go to college, and where the local school committee disclaims the intention of following university guidance. And even where this is not true of other subjects of study, it holds for the mathematical curriculum, because, apart from the colleges, the subject is not defined by any other authority that the schools are willing to accept.

The ordinary mathematical course in high schools includes algebra, plane geometry, solid geometry, and trigonometry, and, less frefrequently, arithmetic. The algebra courses are usually divided into three groups—(1) up to quadratics; (2) quadratics up to the binomial theorem; and (3) an advanced course, including various disconnected subjects and intended to furnish preparation for further mathematical study. In plane geometry the ordinary sequence is that of Legendre, including geometric constructions and original exercises ("riders"). Under solid geometry are included the usual topics up to the surface and volume of the sphere. The course in trigonometry includes definitions, the formulas and their proofs, logarithms, and triangles with practical applications to surveying and navigation. Where arithmetic is included, not more than half a year is devoted to it, usually at the beginning of the course, to make up any deficiencies in the elementary school preparation, or in order to insure facility and accuracy in routine operations. It must be noted that under the elective system no student in high school is required to take all the courses offered in mathematics, with the result that the mathematical equipment of the future teachers varies considerably both in scope and depth.

THE TRAINING OF TEACHERS.

The institutions for training teachers for the elementary schools are in a preponderating majority normal schools maintained by the State. A few of the larger cities maintain their own training institutions, and there exist in addition a number of private normal schools. More recently there have been established training classes in connection with high schools, for the purpose of training teachers for rural

schools. The high-school training classes usually offer one year of professional study either as part of or at the end of the regular high-school course. There is great variation in the entrance requirements, in the quality and amount of the work offered, and in the length of the course. With the exception of the high-school training classes, the training institutions as a rule offer a two-year professional course based on graduation from high schools. But, as usual, it is impossible to generalize, for some normal schools offer five-year courses beyond the elementary school; others one-year courses beyond the high school. The State normal schools with a two-year course beyond the high school may be taken as the type. They are generally supported by appropriations by the State legislatures. A small number of these schools are supported by a specified State tax, supplemented by appropriations by the State legislatures, and in a few cases they receive some income from the sale or rental of public-land grants. A few State normal schools have small permanent endowments. Tuition is free, except for slight incidental fees, to persons declaring an intention to teach in the State in which the school is located. With the exception of a few schools in the South, the State normal schools are coeducational.

The curriculum of these schools includes academic and professional subjects. The quality of the academic work varies greatly, partly because of the variety of preparation of the students, partly because of the lack of training on the part of the teachers and the heavy programs that they too frequently carry. But the graduates of the better normal schools usually receive full credit for two years' work on entrance to college and universities. The professional studies include psychology, history of education, methods, observation and criticism of instruction, and practice teaching. All normal schools have facilities for practice teaching, either in schools under their immediate control or in schools of the regular public system. The practice or training school is usually under the charge of a member of the normal school faculty, whose task it is to coordinate the work of the normal schools and practice schools. The practice teaching of the students is done under his supervision and that of critic teachers.

There are as yet no definite qualifications required from normal-school teachers. Accordingly, while the majority of the teachers who have charge of mathematics are college trained, there is still a large number with only high-school or normal-school training. Most of the teachers of mathematics would prescribe work through the calculus as the minimum academic preparation for teachers of mathematics in normal schools; a few would include more advanced courses as the minimum. It is generally admitted, too, that such teachers should have had some professional preparation as well as experience in teaching in elementary and high schools. With the gradual extension of the scope of the work of the normal schools, as, for example, the

inclusion of analytics and calculus in the curriculum offered, there is a tendency also to require at least one year of graduate work from the teachers of these subjects.

It is usually assumed that students have had a high-school course in arithmetic of one term or semester, one year or more of algebra, and one year of geometry, usually plane. In some normal schools arithmetic is required of students "found wanting" in its subject matter. In many schools solid geometry, advanced arithmetic, advanced algebra, and trigonometry are offered as electives.

It is thus apparent that the teacher of mathematics in the first six grades has a knowledge of subject matter in formal mathematics far beyond any of the actual needs arising within these grades. That this knowledge of subjects beyond elementary arithmetic is effective in the teaching of the arithmetic, it would be very difficult to show. The formal and isolated character of the work in algebra and geometry, as they are usually taught, leaves them barren of any content values having a bearing upon anything which appears in the usual work of the first six grades. Even in the best normal schools there is little evidence that the work in algebra and geometry is any less academic than in the classical high schools. In the normal school "humanistic" values should certainly most fully reveal themselves. There is but little specific preparation for the teaching of seventh and eighth grade mathematics. There is a failure to realize the truth of the statement that "this (seventh) grade marks the approach of the time when the pupil should pass from mere control and manipulation to understanding and investigation," and to provide the kind of instruction needed to lead the pupil out into the broader field of mathematical knowledge.

The following table shows for 64 schools the different courses given, the number of schools offering each course, and the average number of hours given to each course:

Number of schools offering certain courses.

Subjects.	Number of schools offering.	Average number of hours.
Arithmetic	All.	100
Elementary algebra	All.	171
Plane geometry	All.	143
Advanced algebra	9	108
Solid geometry	18	72
Methods of teaching Mathematics	32	63
Plane trigonometry	40	77
Spherical trigonometry	4	80
Analytics	25	96
Calculus	23	87
Theory of equations	3	52
Differential equations	1	48
Surveying	11	57
Analytical mechanics	1	48
History of mathematics	8	70

The professional courses and work include a course in arithmetic methods or in arithmetic with some attention to methods in all normal schools, observation and practice teaching in some form in most of them, and a course in the history of mathematics in very few. The subcommittee of Committee No. I, that dealt with the preparation of elementary branches in the preparation of the American report to the international commission, came to the conclusion that great differences in ideals and practice exist with reference to the following points: There is variation from method as a mere incident to subject matter to the use of full time for method in "methods" courses; from no use whatever of current literature on the teaching of mathematics to "very extensive" use of such literature; from no consideration of games and recreational devices to very careful consideration and testing of these; from no consideration of the course of study in arithmetic for the grades to the full development of such a course and the organization for presentation of certain of its units; from no mention at all of the history of the development and teaching of mathematics to the establishment of well-organized courses in this subject; from no observation of lessons in arithmetic in the grades in connection with methods courses to one observation lesson each week during the course; from no practice teaching at all required in mathematics to practice work in arithmetic for all in at least two grades; from no supervision of practice work and the teaching of mathematics in the training school by the teacher of mathematics to close, jointly responsible supervision with the grade supervisors; from positive discouraging of departmental teaching of mathematics in the grades to positive advocating of it in middle and upper grades; and from no differentiation in training for the grades to courses in detailed special methods for primary grades.

There are also evident the following points of general uniformity: Entrance requirements to methods courses in arithmetic are quite uniformly high-school courses of about one-half year's work in arithmetic, one year in algebra, and one-half year or one year in plane geometry. Some kind of methods or teacher's course in mathematics is found in all. Some form of observation work, either in connection with the course in arithmetic methods or with general method or practice teaching, is advocated by all. In general, departmental work below the seventh is discouraged. No school is fully satisfied with its present practice.

Suggestions for reform are of four types: Greater knowledge of subject matter; a reorganization of arithmetic material, giving it more vital relationship to the child's life and to social life; a more intelligent knowledge of the pedagogy of arithmetic; and a closer, more vital relationship between the department of mathematics and the teaching of arithmetic in the training school. Three ways

are suggested for bringing about this last relationship: By more systematic observation work in the grades, by more responsibility for the course of study and the methods of teaching in the grades, and by the closer supervision of practice teaching in arithmetic by the department of mathematics.

From inferences based upon the foregoing, and from reflection upon the general problem, the committee believe that the best theory and practice of to-day point to the following conclusions: That a foundation in subject matter as a basis for the professional study of mathematics for teaching the subject in the first six grades of the elementary school should include a minimum of one-half year in high-school arithmetic, one year of algebra, and one year of geometry; that, exclusive of all courses in psychology, pedagogy, principles of teaching, general method, or history of education, a minimum of one-half year's professional study of arithmetic should be required to include the following: A course in "special method," the teaching of elementary mathematics which should consider the more elementary phases of the psychology of number; principles of general method in their application to arithmetic; educational values of arithmetic and the place of arithmetic in the general educational scheme; the organization of the elementary school curriculum in arithmetic; the organization of typical units of subject matter for presentation to appropriate grades; the development and writing of typical plans for teaching; the utilization of local and general economic studies for number application; the observation and discussion of typical lessons in the grades showing concrete applications of principles developed; the place of games and other recreational devices in lower grade work in number, and the historical development of the teaching of arithmetic, showing the place and value of certain "methods," as the Grube, Speer, etc.

The committee believe, further, that every school engaged in the preparation of teachers of mathematics should develop a museum or teaching collection of materials—apparatus, books, pamphlets, papers, etc.—which will aid in interpreting the historic development of the subject, present-day practice, textbooks, etc.; that the head of the department of mathematics should be largely responsible for the organization of the course of study in mathematics in the training school in cooperation with the department of education and the supervisors in the training school; that the head of the department of mathematics should aid in the supervision of the teaching of mathematics in the training school; and that he, as well as the supervisors or critic teachers, should be able to give demonstration lessons in the training school illustrative of principles of teaching developed in the "methods" class, and that the points of emphasis in all obser-

vations, discussions, plans, and criticisms should be upon the basis of fundamental principles rather than upon petty details.

The aim in the whole professional consideration of mathematics for teachers of these grades is, broadly, to give acquaintance with the fundamental principles of teaching arithmetic, of the organization of its subject matter, of its place in the educational scheme, and of its historical development. The teacher should be given the pedagogical outlook and perspective of arithmetic, as well as the ways and means of teaching its details. He should know enough of the psychology of number to enable him to secure healthy interest and adequate drill and to sacrifice neither at the expense of the other.

The greatest problem of all at the present time would seem to be to find teachers for departments of mathematics in normal schools who themselves have the wide pedagogic outlook desired for such work. When teachers can be found who have this larger perspective and who will regard the training school as the laboratory for developing insight, intelligence, and a minimum of skill in the teacher to be sent out into the field at large, this vital, daily union of theory and practice will do much to increase the efficiency of the prospective teacher in elementary mathematics.

To this may be added the recommendations received by the subcommittee that inquired into the conditions which a rational preparation of teachers for the seventh and eighth grades should fulfill. The replies received were as follows: Massachusetts—(*a*) normal or college diploma, (*b*) summer school course at least every third year, (*c*) membership in local mathematics club, (*d*) membership in New England Mathematical Association; Virginia—(*a*) high-school course, (*b*) good normal course, with practice work; Georgia—(*a*) teaching knowledge of subject, (*b*) practice course, (*c*) rational course in pedagogy; Indiana—inexperienced teachers should not be allowed in seventh or eighth grade work; Iowa—good knowledge of arithmetic, algebra, and geometry; Missouri—more attention to subject matter, but method not neglected.

IMPROVEMENT OF TEACHERS IN SERVICE.

The agencies for the further training of teachers in service are far more numerous in the United States than in any other country. Among these may be mentioned teachers' institutes, summer schools, reading circles, and the ordinary routine supervision. Teachers' institutes are classified into State, county, and city, the county being the most usual unit. The meetings are generally held during the school year, and the teachers are compelled to attend. The length of the sessions varies from half a day, when the institutes are held several times during the year, to five days or longer, when the insti-

tute assumes more the character of a regular training school at which the regular lessons are assigned and recitations are conducted. There is at present a widespread demand for reform in the method of conducting the institutes to provide for genuine professional growth instead of being what has been termed "inspirational." It is proposed to replace the discussion of general topics with a class of pupils and discussions by the teachers. In such a program arithmetic often finds a place, from two to three hours in a five-day session being devoted to the subject. In this time the instructor may give his time wholly to the detail of special method, or, perhaps, set before the institute the latest reforms and tendencies in the teaching of arithmetic. The topics of a more general nature discussed by institute instructors may be those concerned with the enriching of the course of study, the making of arithmetic practical, the elimination of waste material, the relative value of the topical and spiral plans in the arrangement of subject matter, the place of algebra and geometry in the elementary school, and others. In presenting special method the instructor may relate it to devices in the lower grades, the teaching of the fundamental operations, explanations of problems, special topics like percentage, etc.

Summer schools are conducted by universities and colleges and normal schools, or are specially organized by State educational authorities. Their duration varies from 2 to 12 weeks. The work is, in general, intended for teachers in service. Courses in mathematics have been regarded in most cases as of special importance in these summer curricula. In fact, in several instances the work began with courses in mathematics and perhaps one other subject, and was gradually extended to include courses in all the regular departments as the number of students increased and the demand became apparent.

The courses offered in mathematics may be roughly divided into two classes: (1) Those intended primarily to emphasize the pedagogic aspect of the subject, and (2) those intended primarily to develop the subject matter for its own sake or as a prerequisite to other courses. The pedagogic courses include critical studies of the various elementary and secondary branches with reference to scientific interpretation and methods of presentation and also studies in the history of mathematics, with special reference to the needs of teachers in elementary and secondary schools.

In general, it may be said that a large number of those in attendance at the summer sessions are teachers spending a part or all their vacation in study, but it does not follow that all are seeking the strictly pedagogic courses. In fact, very many are pursuing courses for degrees, and are therefore filling out requirements or choosing elective work in subject matter in which they are interested. It is

true, however, that in most cases where special courses of a pedagogic character are given they are well attended and fully appreciated. On the other hand, there is a wide difference of opinion among institutions offering summer work as to the usefulness of the pedagogic courses as compared with the content courses. It is believed by many that the best pedagogic training comes through careful and diligent study of the subject matter under the guidance of an inspiring teacher who knows how to exhibit good methods and to impress them by example, rather than precept, upon the students.

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*No. 6. The apprenticeship system in its relation to industrial education. Carroll D. Wright. 15 cts.
No. 8. Statistics of State universities and other institutions of higher education partially supported by the State, 1907–8.

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*No. 1. Facilities for study and research in the offices of the United States Government in Washington. Arthur T. Hadley. 10 cts.
No. 2. Admission of Chinese students to American colleges. John Fryer.
*No. 3. Daily meals of school children. Caroline L. Hunt. 10 cts.
No. 5. Statistics of public, society, and school libraries in 1908.
*No. 6. Instruction in the fine and manual arts in the United States. A statistical monograph. Henry T. Bailey. 15 cts.
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*No. 4. Report of the commission appointed to study the system of education in the public schools of Baltimore. 10 cts.
*No. 5. Age and grade census of schools and colleges. George D. Strayer. 10 cts.
*No. 6. Graduate work in mathematics in universities and in other institutions of like grade in the United States. 5 cts.
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*No. 15. Educational system of China as recently reconstructed. Harry E. King. 10 cts.
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*No. 1. A course of study for the preparation of rural-school teachers. F. Mutchler and W. J. Craig. 5 cts.
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*No. 28. Cultivating school grounds in Wake County, N. C. Zebulon Judd. 5 cts.
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No. 30. Latin-American universities and special schools. Edgar E. Brandon.

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*No. 2. Training courses for rural teachers. A. C. Monahan and R. H. Wright. 5 cts.
*No. 3. The teaching of modern languages in the United States. Charles H. Handschin. 15 cts.
*No. 4. Present standards of higher education in the United States. George E. MacLean. 20 cts.
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*No. 23. The Georgia club at the State Normal School, Athens, Ga., for the study of rural sociology. E. C. Branson. 10 cts.
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*No. 31. Special features in city school systems. 10 cts.
*No. 32. Educational survey of Montgomery County, Md. 10 cts.
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*No. 1. Cooking in the vocational school. Iris P. O'Leary. 5 cts.
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No. 37. Some foreign educational surveys. James Mahoney.
No. 38. The university and the municipality.

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UNITED STATES BUREAU OF EDUCATION
BULLETIN, 1915, NO. 40 - - - - - - - WHOLE NUMBER 667

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CONTENTS.—Introductory notes—Publications of associations—Educational history—Current educational conditions—Pedagogics and didactics—Educational psychology; Child study—Special methods of instruction—Special subjects of curriculum—Kindergarten and primary school—Rural education—Secondary education—Teachers: Training and professional status—Higher education—School administration—School management—School architecture—School hygiene and sanitation—Sex hygiene—Social aspects of education—Child welfare—Moral education—Religious education—Manual and vocational training—Vocational guidance—Agricultural education; Home economics—School gardens—Professional education—Education of women—Negro education—Education of deaf and blind—Exceptional children—Education extension—Libraries and reading—Bureau of Education: Recent publications.

INTRODUCTORY NOTES.

The following is a selection of recent educational books of importance, the numbers in parentheses referring to the full entries in this bulletin: Graves, A student's history of education (1092); Foster, Debating for boys (1129); Bachman, Problems in elementary school administration (1174); National society for the promotion of industrial education, Proceedings, 1914 (1198); Bloomfield, Readings in vocational guidance (1208).

Only publications of the Bureau of Education are available for free distribution by this office. All others here listed may ordinarily be obtained from their respective publishers, either directly or through a dealer, or, in the case of an association publication, from the secretary of the issuing organization.

Books, pamphlets, etc., intended for inclusion in this record should be sent to the library of the Bureau of Education, Washington, D. C.

PUBLICATIONS OF ASSOCIATIONS.

1088. **Mississippi teachers' association.** Proceedings of the thirtieth annual meeting . . . Laurel, Miss., April 29 to May 1, 1915. Brookhaven, Miss., Lincoln county times, 1915. 143 p. 8°. (H. L. McCleskey, secretary, Hazlehurst, Miss.)

Contains: 1. P. P. Claxton: [Report of Dr. Claxton's address on the six-six plan], p. 37-39. 2. L. B. Evans: What we owe our children, p. 39-41. 3. B. L. Hatch: The course of study and the principles underlying its determination, p. 72-76. 4. S. C. Hall: Should essentials of a course of study vary to satisfy social demands in different school districts, p. 76-81. 5. Mabel Mitchell: Using home science as a means of more closely connecting the home and school, p. 82-85. 6. Mary Stokes: Co-operation between the elementary school and the state, p. 90-94. 7. J. J. Dawsey: Classification of schools, p. 97-102. 8. A. L. Bondurant: Live Latin, p. 104-8. 9. Should our educational system include activities whose special purpose is preparation for war? From the standpoint of the college [by] D. M. Nelson, p. 109-10; From the standpoint of the common schools [by] Anna Jones, p. 110-11; From the standpoint of the home [by] Mrs. G. D. Booth, p. 111-12.

1089. **Ohio state teachers' association.** Proceedings—sixty-eighth year, June 30 to July 2, 1915. Ohio educational monthly, 64 : 350-431, August 1915.

Contains: 1. P. E. Cromer: Attendance problem, p. 361-63. 2. J. H. Cook: Consolidation—an indispensible feature of modern rural education, p. 363-67. 3. L. T. Skeggs: The social opportunity of the rural school, p. 367-71. 4. G. J. Keinath: The curriculum of the country school, p. 371-73. 5. Teacher training in Ohio—H. B. Williams: The raw material, p. 373-77; H. C. Minnich: Possibilities and limitations, p. 377-79. 6. G. W. Knight: Agencies for training teachers in Ohio, p. 379-84. 7. H. G. Williams: A question of standards, p. 384-91.

1090. **Vermont state teachers' association.** Report of the sixty-fifth annual convention, St. Johnsbury, Vt., October 15–17, 1914. 128 p. (Margaret R. Kelley, secretary, Derby, Vt.)

Contains: 1. E. B. Smith: Practical medical inspection, p. 20-23. 2. W. H. Crawshaw: The human element in education, p. 24-29. 3. W. S. Learned: The teacher's interest in the teacher, p. 31-42. 4. M. B. Millegas: Some standards for judging the school's efficiency, p. 42-46. 5. G. S. Wright: The grading of adolescent pupils; a plea for a system which does not sacrifice the welfare of the pupil to subject matter, p. 55-59. 6. M. D. Chittenden: What subjects of the traditional high school course can best be displaced by a course in manual training or home economics, p. 59-65. 7. C. H. Willey: Elementary schools. Some troubles and how I have met them, p. 65-71. 8. W. A. Beebe: Keeping children after school; its use and abuse, p. 78-79. 9. F. B. Jenks: Agricultural education in our public schools, p. 80-88. 10. A. C. Hurd: How to make country life more satisfying, p. 89-94. 11. E. L. Ingalls and J. L. McBrien: Boys' and girls' clubs, p. 94-100. 12. David Snedden: Some current problems in education, p. 107-11.

EDUCATIONAL HISTORY.

1091. **Fisk, Carl R.** The English parish and education at the beginning of American colonization. School review, 23 : 433–49, September 1915.

Interesting historical sketch, with copious bibliographical references and notes.

1092. **Graves, Frank Pierrepont.** A student's history of education. New York, The Macmillan company, 1915. 453 p. 12°.

"Supplementary reading" at end of each chapter.

1093. **Sandys,** *Sir* **John Edwin.** A short history of classical scholarship from the sixth century B. C. to the present day. Cambridge, University press, 1915. 455 p. illus. 8°.

1094. **Spranger, Eduard.** Der zusammenhang von politik und pädagogik in der neuzeit. Umrisse zu einer geschichte der deutschen schulgesetzgebung und schulverfassung. (Fortsetzung.) § 17. Ludolph Beckedorff. Die deutsche schule, 19 : 283–93, May 1915.

For references to earlier installments see: Monthly record of current educational publications, 1914, item 1478; 1915, item 880.

1095. **Wells, Guy F.** The first school survey. Educational review, 50 : 166–74, September 1915.

First survey undertaken by Rhode Island in 1843. Conducted by Henry Barnard, who was asked by the legislature to draw up a bill revising the school code. With a few changes his bill was enacted in 1845.

CURRENT EDUCATIONAL CONDITIONS.

1096. **Alabama. Dept. of education.** The elimination of illiteracy in Dale County; report of a visit of the rural school agent. Montgomery, Alabama illiteracy commission, 1915. 31 p. illus. 8°.

1097. **Boise, Id. Board of education.** Special report of the Boise public schools. [Boise, Id.] 1915. 96 p. 8°.

1098. **Brown, Elmer E.** Educational progress of the past fifteen years. American education, 19 : 12–17, September 1915.

Address delivered at the Congress of education, Oakland, California, August 16, 1915.

1099. **Castelli, Giuseppe** *and* **Brasca, Luigi.** Le istituzioni scolastiche. Torino [etc.] Unione tipografico-editrice torinese, 1915. 326 p. 8°. (Biblioteca di ragioneria applicata. vol. XI, monografia 22)

CONTENTS.—pte. I. Natura e fini delle istituzioni scolastiche (G. Castelli).—pte. II. Amministrazione e contabilità degli istituti d'istruzione (L. Brasca).

1100. **Cooper, Clayton Sedgwick.** Modern ideals in American education. Educational foundations, 27 : 12–21, September 1915.

1101. **Deutscher lehrerverein. Pädagogische zentrale.** Entwurf eines fragebogens zu periodischen erhebungen über den fortschritt der verbesserungen der öffentlichen volksschulen im Deutschen reiche. Im auftrage der pädagogischen zentrale des Deutschen lehrervereins bearbeitet von Aloys Fischer. Zeitschrift für pädagogische psychologie und experimentelle pädagogik, 15: 454–65, September/October 1914.

Schema of a proposed school survey in the form of a questionnaire.

1102. **Duval, P.** Les programmes de l'enseignement primaire et la guerre. Révue pédagogique, 66 : 455–73, June 1915.

A detailed account of the modification of the content of subjects of study for the purpose of instilling the lessons of the European War.

1103. A handbook of the best private schools of the United States and Canada; an annual publication, 1915. Boston, P. E. Sargent [1915] 514 p. 12°. (Sargent's handbook series)

1104. **Randall, A. W. G.** The failure of Prussian education. Journal of education (London), 47 : 561–62, 564, September 1, 1915.

Says that France is the most successful of all nations in combining "cosmopolitanism and an ineradicable sense of nationality," in its institutions of learning. In France emphasis is laid on culture; in Germany on erudition.

1105. **Sadler, Michael E.** Changes in English education since 1900. School and society, 2 : 367–71, September 11, 1915.

1106. **Schierbaum, Heinrich.** Deutscher geist für deutsche schulen. Zeitschrift für lateinlose höhere schulen, 26 : 195–200, 7. und 8. heft, 1915.

Condemns the still regnant Hellenic spirit in the schools and calls for the enthronement of the German spirit in German schools.

1107. **Tews, J.** Umschau. Die deutsche schule, 19 : 315–22, May 1915.

A counsel on the future of education in Germany after the War. Revolutionary changes not expected, but a movement in the direction of an education more democratic and closer to life

1108. **Wilkinson, Emma T.** New idealism in elementary education. Education, 36 : 34–45, September 1915.

A strong plea for better ethical training in the public schools.

PEDAGOGICS AND DIDACTICS.

1109. **Burnham, William Henry.** Bibliographies on educational subjects. 4. Experimental and general pedagogy. Worcester, Mass., Clark university press, 1915. 32 p. 8°. (Publications of the Clark university library. vol. 4, no. 5)

Bibliographies prepared by students of Clark university.

1110. **Campagnac, Ernest Trafford.** Studies introductory to a theory of education. Cambridge, University press, 1915. 133 p. 12°.

1111. **Leupolt, Edmund.** Der neue lehrplan für die sächsischen seminare. Pädagogische zeitung, 44 : 265–67, May 27, 1915.

1112. **Mulford, Henry J.** The beginnings of education. Buffalo medical journal, 71: 67–76, September 1915.

Second paper of series. Discusses the teacher and methods of teaching. Emphasizes the danger of fatigue. Shows the physiological effects upon the child.

1113. **Ruediger, W. C.** Is credit for quality sound? School review, 23 : 450–54, September 1915.

Writer deplores the fact that many high school and college teachers have no "consistent grasp of educational theory, including the theory of motivation, and are therefore unable to bring student and subject vitally together."

1114. **Sleight, W. G.** Educational values and methods based on the principles of the training process. Oxford, Clarendon press, 1915. viii, 364 p. 12°.

1115. Vom rechte des kindes. Schweizerische lehrerzeitung, 60 : 153–56, 163–65, 173–75, 186–87, May 8, 15, 22, 29, 1915. (To be concluded)

A critical examination by a conservative thinker of the libertarian tendencies in educational thought and practice represented by Ellen Key, Ludwig Gurlitt, Leon Tolstoi, Berthold Otto.

1116. **Wyneken, Gustav.** Der krieg und die schule. Akademische rundschau, 3 : 293–305, May 1915.

The most radical thinker among German educators advocates a pedagogy and educational policy oriented by the forward look to the needs of the present. Page 303–05, an invitation by the editors to a discussion of Wyneken's article.

EDUCATIONAL PSYCHOLOGY; CHILD STUDY.

1117. **Chase, H. W.** The recent spelling test. North Carolina high school bulletin, 6 : 125–40, July 1915.

Some comments on the recent high school spelling test held in North Carolina.

1118. **Jessup, Walter A.** Standards and current practices. School and society, 2 : 137–43, July 24, 1915.

Theorists, investigators, and superintendants have for some time been critical toward the content, method of teaching, time expenditure, etc., in the teaching of arithmetic. While they are not perfectly agreed, yet there is sufficient agreement to make it worth while to know the extent of these agreements, which are set forth in this article.

1119. **Moore, Charles N.** On correlation and disciplinary values. School and society, 2 : 378–85, September 11, 1915.

Discusses particularly the literature on correlation between abilities in different school subjects.

1120. **Stark, William E.** Measurement of eighth grade composition. School and society, 2 : 208–16, August 7, 1915.

This study is based upon compositions written by all members of the eighth grade in the public schools of Hackensack, New Jersey.

1121. **Tidyman, W. F.** A critical study of Rice's investigation of spelling efficiency. Pedagogical seminary, 22 : 391–400, September 1915.

The writer thinks that Rice's investigation offers little of direct, positive value to pedagogical theory and practice. Its greatest and, indeed, its monumental service to education must be that it raised questions and stimulated experimentation and criticism of existing practices.

1122. **Zeidler, C.** Beiträge zur psychologie des jugendwanderns. Zeitschrift für pädagogische psychologie und experimentelle pädagogik, 15 : 465–82, September/October 1914.

A study of the psychology of children's outing tours based on material gathered by the Pädagogische vereinigung of Hamburg.

SPECIAL METHODS OF INSTRUCTION.

1123. **Louisiana state university and agricultural and mechanical college. Dept. of junior extension and home economics.** Autostereopticon and moving picture machine for extension service in rural schools. Baton Rouge, Ramires-Jones printing company, 1915. 14 p. illus. 8°. (University bulletin, Louisiana state university. vol. VI, n. s., no. 7)

SPECIAL SUBJECTS OF CURRICULUM.

1124. **Bagley, W. C.** Minimal essentials in geography and history. American school, 1:206–9, August 1915.

1125. **Chiles, E. E.** Oral exposition for colleges and high schools. English journal, 4 : 458–64, September 1915.

Discusses the technique of presentation in the longer theme work of the advanced high school student and of the beginner in college or university composition.

1126. **Colozza, Giovanni Antonio.** La matematica nell'opera educativa. Roma [etc.] Società editrice Dante Alighieri di Albrighi, Segati & c., 1915. 197 p. 12°. (Biblioteca pedagogica antica e moderna italiana e straniera. vol. XXXIV)

1127. **Cooper, William A.** The direct versus the indirect method of teaching modern languages. Education, 36 : 1–10, September 1915.

A plea for the direct method. Says that the only proper way "to learn to read a foreign language is to learn to understand it directly, without any thought of translation."

1128. **Earhart, Gertrude** *and* **Small, Jennie.** English in the elementary school Elementary school journal, 16 : 32–48, September 1915.

Experiment carried on in the Boise elementary school, Boise, Idaho.

1129. **Foster, William Horton.** Debating for boys. New York, Sturgis & Walton company, 1915. 175 p. 12°.

"A simple, unpretentious manual designed to help boys to debate efficiently."—Pref.

1130. **Haney, James P.** The art of teaching art. School-arts magazine, 15 : 9–13, September 1915.

To be concluded next month.

An address before the American federation of arts, Washington, D. C., 1915.

Tells how the School art league of New York City is trying to rouse an interest in its art museums, on the part of many hundreds of school children.

1131. **Hodgson, Elizabeth.** The adolescent's prejudices against the classics. English journal, 4 : 427–38, September 1915.

In order to develop imagination students should read dramatically the most effective parts of novels and plays, and should practice visualization of all sorts.

1132. **Jordan, David Starr.** The teacher and war. School and society, 2 : 289–97, August 28, 1915.

Substance of the address delivered by the president of the National education association, Oakland, Cal., August 16, 1915.

1133. **Kelsey, Raynor W.** Recent changes in the teaching of history in the colleges and universities of the middle states and Maryland. History teacher's magazine, 6 : 207–10, September 1915.

1134. **Larzelere, Claude S.** The study of state history, with illustrations from Michigan. History teacher's magazine, 6 : 199–203, September 1915.

1135. **Leavitt, Frank M.** *and* **Brown, Edith.** English for prevocational boys. Elementary school journal, 16 : 22–31, September 1915.

Recites purposes of a full twelve-year course; reading for entertainment, etc. To be concluded.

1136. **Leoni, Carlo.** La matematica nel suo insegnamento primario e secondario. Milano, F. Vallardi [etc., etc.] 1915. 256 p. 12°. (Biblioteca enciclopedica Vallardi. Biblioteca pedagogica 4)

Bibliography: p. 253–256.

1137. **Lewis, Howard T.** The social sciences in the secondary schools. School review, 23 : 455–64, September 1915.

Declares there are good reasons for making the ends of education three—vocational, political (including the sociological), and cultural. Writer says that any system of education that fails "to perform all three of these in form adapted to the particular student in question fails to perform the function for which it was created."

1138. **McCorkle, Charles E.** The teaching of current events. Pedagogical seminary, 22 : 413–23, September 1915.

Gives the outlines and methods of teaching current events in a few cities. Thinks they are worthy of careful consideration.

1139. **Mahin, Helen O.** The study of English composition as a means to fuller living. English journal, 4 : 445–50, September 1915.

1140. **Meredith, A. B.** On the teaching of literature. Educational foundations, 27 : 22–31, September 1915.

Discusses the preparation of the class for a literature lesson, reading aloud, talking about a selection, memorizing, reproducing in one's own language, and the library.

1141. **Reeve, W. D.** Exhibit of high-school mathematics—its history and educational value. School and society, 2 : 191–97, August 7, 1915.

The purpose of the article is "to show that mathematics can be made practical, that it has been made interesting, and that mathematics exhibits are a means of increasing both interest and efficiency in mathematics."

1142. **Smith, David Eugene.** Problems about the war for classes in arithmetic. With an introduction by Paul Monroe. New York, 1915. 23 p. 8°. [Carnegie endowment for international peace. Division of intercourse and education. Publication no. 7]

1143. **Snowball, F. G.** Handwork and modelling in connection with the teaching of history. School world (London), 17 : 323–29, September 1915.

Gives interesting illustrations of models.

1144. **Stevens, W. J.** Geography in the St. Louis elementary schools. Journal of geography, 14 : 13–19, September 1915.

Recommendations of the committee on geography of the St. Louis public schools.

1145. **Turner, E. R.** Greek in London. Educational times (London), 68 : 339–42, September 1, 1915.

A somewhat unique presentation of the advantages and disadvantages of studying Greek.

1146. **Williams, M. Ida.** Anything new in high-school English? English journal, 4 : 439–44, September 1915.

Work in the Pasadena (Cal.) high school. Opinions of students regarding the course in current literature.

KINDERGARTEN AND PRIMARY SCHOOL.

1147. **Klingensmith, Annie.** The distinctive features of the primary schools of Gary. Primary education, 23 : 414–16, September 1915.

1148. **Smith, H. Bompas.** Conference on new ideals in education. Educational times (London), 68 : 334–36, September 1, 1915.

A review of the Montessori system.

RURAL EDUCATION.

1149. **Brown, Horace G.** What functions in the rural school? Education, 36 20–33, September 1915.

Describes the work of a rural school teacher in New England; cooperation with parents, etc.

1150. **Elliff, Joseph Dolliver** *and* **Jones, Abner.** A study of the rural schools of Saline County, Missouri. Columbia, Mo., University of Missouri, 1915. 32 p. map. 8°. (The University of Missouri bulletin, vol. 16, no. 22. Education ser. 11)

"Bibliography of school surveys": p. 29–32.

1151. **Kent, Raymond A.** Rural school support. School education, 35 : 4, 32, September 1915.

This discussion will be continued in subsequent articles.

The writer, in his work as secretary of the Educational commission of Minnesota, collected some interesting data which is given in this article.

1152. **Wadsworth, Francis G.** Present activities in rural school administration in Massachusetts. American school, 1 : 182–84, July 1915.

"An agent of the Massachusetts Board of Education explains the plans now in operation there to improve the administration of the rural schools."

SECONDARY EDUCATION.

1153. **Burns, James A.** Catholic secondary education in the United States. Columbus, Ohio, Catholic educational association, 1915. 66 p. 8°. (Catholic educational association bulletin, vol. 11, no. 4, August 1915)

Contains statistics of Catholic secondary schools in the United States.

TEACHERS: TRAINING AND PROFESSIONAL STATUS.

1154. **Bolton, Frederick E.** Higher standards of preparation for teaching. Education, 36:46–49, September 1915.

Recites the requisites for teaching. Says that rural school teachers should have at least the academic preparation represented by a four-year high school course.

1155. **Gregg, F. M.** Making a teachers' institute worth while. Middle-West school review, 8:5–7, August 1915.

The writer says that if the teachers' institute is to survive as an educational agency there are four factors necessary—an enterprising conductor, a carefully constructed program, strong and inspiring instructors, and a participating body of institute patrons.

1156. **Meyer, Arthur William.** Leaves of absence in American universities. School and society, 2:356–60, September 4, 1915.

A questionnaire concerning leave of absence was sent to 72 American universities. Gives a summary of the 61 replies received.

1157. **Pritchett, Henry S.** Ten years of college pensions. Independent, 83: 361–63, September 13, 1915.

Discusses the pension system of the Carnegie foundation for the advancement of teaching. What it has accomplished during the past ten years. The Foundation as investigator.

1158. **Williams, H. H.** The good teacher. North Carolina high school bulletin, 6:111–24, July 1915.

A lecture delivered before the University of North Carolina summer school for teachers, June 22, 1915.

HIGHER EDUCATION.

1159. **Aley, Robert J.** The college and the freshman. School and society, 2:152–54, July 31, 1915.

Abstract of an address delivered at the Castine conference of school principals and superintendents.

The writer believes that freshmen in our colleges would fare better if (1) The colleges spent a larger proportion of their income for freshman instruction; (2) The numbers in a freshmen section did not exceed thirty; (3) The lecture method were abolished, except where a written or oral quiz is given upon each lecture; (4) The teachers cultivated more sympathy and thus induced a better spirit of cooperation; and (5) The student, his parents, and the school from which he came, were kept accurately informed of his progress.

1160. **Canby, Henry S.** The colleges and mediocrity. Harper's magazine, 131: 423–28, August 1915.

Writer contends that until democracy reaches the level of its opportunities, or is proved a failure, the problem of mediocrity will continue to exist.

1161. **Dealey, Hermione L.** A comparative study of the curricula of Wellesley, Smith and Vassar colleges. Pedagogical seminary, 22:347–76, September 1915.

Bibliography: p. 374–76.

The purpose of this paper is "to give the results of a practical investigation of the curricula of Wellesley, Smith and Vassar colleges, and, on the basis of the studies actually elected by the students, to ascertain the direction of the modern college girl's development."

1162. **Dickey, Frank A.** Academic fees in the United States. Educational review, 50:136–43, September 1915.

1163. **Gray, A. A.** The junior college in California. School review, 23: 465–73, September 1915.

Emphasizes fact that the future of the junior colleges in California is bright and their field of work extensive. Says their work must be complete in itself—a preparation for citizenship and not for the higher educational instruction.

1164. **Kolbe, Parke R.** The relation of the municipal university to the educational system. School and society, 2: 186–91, August 7, 1915.

A paper read before the North central association of colleges and secondary schools in Chicago, March 1915.

1165. **Kunkel, B. W.** The distinction of college graduates. School and society, 2: 316–24, August 28, 1915.

A study of the eminence of alumni as represented by their appearing in "Who's who."

1166. **Lawrence, William Witherle.** The humanities and the American university. Columbia university quarterly, 17: 301–15, September 1915.

1167. **Lodge, Henry Cabot.** A modest plea for the "humanities." Harvard graduates' magazine, 24: 58–64, September 1915.

Address delivered at the Radcliffe commencement on June 23, 1915

1168. **McCrea, Nelson G.** Entrance examinations in Latin. Educational review, 50: 120–35, September 1915.

An analysis of the results of the recent examinations in Latin of the College extrance examination board. Paper read at the 10th annual meeting of the Classical association of New England, Boston, April 10, 1915.

1169. **Nicolson, Frank W.** Success in college and in after life. School and society, 2: 229–32, August 14, 1915.

A study of the careers of graduates of Wesleyan university which proves that there is a direct relation between success in college and in after life.

1170. **Ramsay, W. M.** The making of a university; what we have to learn from educational ideals in America. London, New York [etc.] Hodder and Stoughton, 1915. 46 p. 8°.

In his preface the author states that the book contains "the story of how an American college was created by the faith and work of one man" referring to Grove City college and Dr. Isaac Conrad Ketler.

1171. **Seaton, John Lawrence.** The function and the opportunity of the church college. Christian student, 16: 81–87, August 1915.

1172. **Sims, John F.** Berea college. American school, 1: 185–86, July 1915.

"The president of a Wisconsin normal school gives an account of a visit to Berea college and of the notable work which is being done there."

1173. **Sturtevant, J. H.** The University of Wisconsin. Educational review, 50: 109–19, September 1915.

Discusses the "Wisconsin idea;" the management of the university, etc. A defense of the governor of Wisconsin and others who favor a "central board of education" for Wisconsin.

SCHOOL ADMINISTRATION.

1174. **Bachman, Frank Pulerbaugh.** Problems in elementary school administration; a constructive study applied to New York city. Yonkers-on-Hudson, N. Y., World book company, 1915. x, 274 p. tables. 8°. (School efficiency series. Ed. by P. H. Hanus)

1175. The classification of school accounts. The system devised by Mr. R. H. Thomas, Portland, Oreg. American school board journal, 51: 18, 57–58, 60, September 1915.

1176. **Cubberley, Ellwood P.** Desirable reorganizations in American education. School and society, 2 : 397–402, September 18, 1915.

Writer says that the demand is for intelligent professional leadership, which can be secured by the erection of larger administrative units, the elimination of politics in the selection of experts, and the concentration of larger authority in the hands of those who will really represent the interests of the children.

1177. **Orfield, Matthias Nordberg.** Federal grants to the states with special reference to Minnesota. Minneapolis, University of Minnesota, 1915. v, 275 p. 8°. (Studies in social sciences. no. 2)

Bulletin of the University of Minnesota, March, 1915.

SCHOOL MANAGEMENT.

1178. **Bruce, W. H.** The use and abuse of the examination. Texas school journal, 32 : 9–11, 42–43, 45, 46, June 1915.

1179. **Keith, John A. H.** The improvement of the course of study through organization. School and society, 2 : 259–65, August 21, 1915.

SCHOOL ARCHITECTURE.

1180. **Ittner, William B.** The cost of school buildings. American school board journal, 51 : 17, 69, August 1915.

Paper read before the National association of school accounting officers, May 18, 1915.

SCHOOL HYGIENE AND SANITATION.

1181. **Baker, S. Josephine.** Health of school children. Mother's magazine, 10 : 49–50, 95, September 1915.

The writer, who is Director of child hygiene of the Department of health of New York City, mentions the defects of school children that are the object of most systems of school medical inspection. She says that acute illness is readily recognized by the child's family, but that the school doctor gives attention to the half-hidden physical defects.

1182. [**Gumprecht, Ferdinand**] Das volksbad auf dem dorfe; eine verbindung mit dem schulbad. Das Schulhaus, 17 : 167–80, heft 5, 1915.

A full résumé of Dr. Gumprecht's address at the general meeting (May 1915) of the Deutsche gesellschaft für volksbäder, published in its "Veröffentlichungen". Plans and illustrations.

1183. **Ubertis, Francesco.** La cultura sanitaria del maestro e dell'educatore. Casale Monferrato, Tipografia popolare, 1915. 551 p. illus. 8°.

SEX HYGIENE.

1184. **Brown, Anna L.** Sex education in the Young women's Christian association. Social hygiene, 1 : 581–88, September 1915.

1185. **Exner, M. J.** Sex education by the Young men's Christian associations in universities and colleges. Social hygiene, 1 : 570–80, September 1915.

SOCIAL ASPECTS OF EDUCATION.

1186. **Böhm, A.** Staat und erziehung. Ein beitrag zur lösung der frage auf geschichtlicher grundlage. Pädagogische studien, 36 : 75–91, 2. heft, 1915.

A contrast and weighing of "sozialpädagogik" and "individualpädagogik." The historical basis consists only in a comparison of Plato's and Herbart's doctrines on the relation of the state to the individual and education.

1187. **Chabot, Charles.** La patrie et le droit de l'enfant. Révue pédagogique, 66 : 437–54, June 1915.

A searchingly philosophical discussion of the relation of fatherland and child which leans strongly toward counseling a check of dominant individualistic tendencies in education.

1188. **Cummings, F. L.** Fitting a high school into a community. American school board journal, 51 : 15–16, 69, August 1915.

Describes briefly an attempt that is being made in Flathead county, Montana, by the Flathead county high school, to meet the needs of the community, and so to justify in a new way the school's existence.

1189. **Merlini, Angelo.** Il patronato; manuale per l'organizzazione el il funzionamento del patronato scolastico comunale, e delle opere di educazione e di colutura popolare. Milano, Unione italiana dell' educazione popolare [1915] 352 p. 12°. (Biblioteca dell' Unione italiana dell' educazione popolare)

An explanation of the law of 1911 authorizing the formation of a board, "patronato scolastico," in every city in Italy, the object being to give assistance to the pupils of the public schools.

1190. **Stitt, Edward W.** New York schoolhouses as social centers. Mother's magazine, 10 : 26–28, 96, September 1915.

CHILD WELFARE.

1191. **Doherty, William J.** A study of results of institutional care. New York ty, Dept. of child-helping of the Russell Sage foundation, 1915. 18 p. 8°. (Russell Sage foundation, New York. Pamphlet. CH20)

A paper read before the Children's section of the National conference of charities and correction, Baltimore, Md., May 18, 1915.

MORAL EDUCATION.

1192. **Pace, Edward A.** Education and the constructive aim. Constructive quarterly, 3 : 584–602, September 1915.

Says that the neglect of religious training has made it harder to secure in education a basis for social morality.

RELIGIOUS EDUCATION.

1193. **Fowler, Henry Thatcher,** *and* **Peritz, Ismar J.** The content of an ideal curriculum of religious instruction for colleges. Religious education, 10: 355–61, 362–65, August 1915.

1194. **Ireland, John,** *Archbishop.* Catholic schools for Catholic youth. Catholic educational review, 10 : 97–112, September 1915.

Address delivered at the annual meeting of the Catholic educational association, June 29, 1915.

1195. **Kent, Charles Foster.** Training the college teacher. The training essential to efficiency in Biblical teaching in colleges and universities. Religious education, 10 : 327–32, August 1915.

1196. **O'Neill, Francis.** The Catholic educational convention. Catholic world, 101 : 788–93, September 1915.

Résumé of the sessions of the convention, held in St. Paul, Minnesota, in June 1915.

1197. **Stearns, Wallace N.** The Fargo college plan for a department of religious education. Religious education, 10 : 365–68, August 1915.

Gives the subject-matter taught and the credit given in the department of religious education of Fargo college.

MANUAL AND VOCATIONAL TRAINING.

1198. **National society for the promotion of industrial education.** Proceedings eighth annual meeting, Richmond, Va., December 9–12, 1914. New York City, 1915. 245 p. 8°. (Alvin E. Dodd, secretary, 140 West 42d St., New York, N. Y.)

Contains: 1. Miner Chipman: Fundamentals in education for department stores, p. 15–20. 2. Beulah E. Kennard: The work of the department store education association, p. 21–26. 3. Lucinda W. Prince: Training for salesmanship, p. 27–35. 4. The Richmond survey, p. 43–91.

5. Samuel Gompers: The attitude of the American federation of labor toward industrial education, p. 107–17. 6. Royal Meeker: The need for specialized vocational training, p. 118–24. 7. J. H. Cohen: The protocol and industrial education, p. 127–33. 8. Lewis Gustafson: The recognition of industrial education for apprentices by organized labor, p. 134–43. 9. A. L. Williston: How shall industrial education be organized to meet varying community needs? p. 153–59. 10. F. E. Mathewson: The evening technical and industrial high school, p. 165–73. 11. M. B. King: Short unit courses, p. 174–79. 12. R. O. Small: Trade and technical schools, p. 185–89. 13. Elizabeth Cleveland: Vocational training as a preparation for the "woman in the home," p. 203–8. 14. R. C. Stearnes: The present legal status of industrial and vocational education in Virginia and what legislation is needed to supplement it, p. 211–19. 15. C. A. Prosser: What other states are doing in legislation for vocational education, p. 220–26.

1199. **Barney, Edgar S.** What the teacher can and should do to promote industrial education. Manual training and vocational education, 17 : 6–13, September 1915.

"Shows how the classroom teacher may and should enrich the instruction by the use of industrial material. He should give concrete, local problems, and utilize the experience by real work."

1200. **Griffith, Ira S.** The boy or the trade as an aim? Manual training and vocational education, 17:1–5, September 1915.

Paper read before the Western drawing and manual training association, Chicago, 1915.

Thinks that both the boy and the trade should be the aim; that the subject-matter should be determined by social conditions, and that the method of teaching it should be determined by the child's nature.

1201. **Jenkins, Alfred H.** Educational handwork or manual training. London, W. B. Clive, 1915. 229 p. illus. 16°.

1202. **Leavitt, Frank M.** The inauguration of pre-vocational classes. American school board journal, 51 : 11–13, 65, September 1915.

1203. **Levitas, Arnold.** The value of elementary trade education. School and society, 2 : 278–87, August 21, 1915.

Speaks especially of trade education in New York City.

1204. **McKinney, James.** Manual training ideals of yesterday, today, and tomorrow. Industrial-arts magazine, 4 : 142–44, October 1915.

1205. **Mac Nary, Egbert E.** Beginners in trade schools. Manual training and vocational education, 17 : 14–28, September 1915.

"The present article is an especially important contribution to the discussion of methods, first, because it is the result of several years of careful experiment and thoughtful study and, second, because the results presented will seem quite revolutionary to many of our readers."

1206. **Prosser, C. A.** Vocational work in the rural school. School education, 35 : 5, 30, 32, September 1915.

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1207. **Bate, W. G.** Vocational guidance in a small city. American school board journal, 51 : 11–12, August 1915.

A short summary, pointing out the essential parts of the plan followed in Mankato, Minnesota, in attempting to establish some feasible system of vocational counseling and guidance in a town of 15,000 with a high school enrollment of 500.

1208. **Bloomfield, Meyer,** *ed.* Readings in vocational guidance. Boston, New York [etc.] Ginn and company [1915] 723 p. 8°.

A collection of "magazine articles, addresses, and other contributions to the literature of the subject, many of them not published elsewhere."

1209. **Lewis, E. E.** The aims of vocational guidance. Midland schools, 30:17–20, September 1915.

1210. **Miner, James B.** A vocational census of college students. Educational review, 50:144–65, September 1915.

"The fundamental purpose of the census was concerned with the student's first preferences for their future occupations." Work done at the University of Minnesota. Presents interesting statistical tables.

AGRICULTURAL EDUCATION; HOME ECONOMICS.

1211. **Hamilton, Robin Lynn.** The high school lunchroom a market for the domestic science kitchen—a real business for the commercial department. Industrial-arts magazine, 4:154–58, October 1915.

Tells of a plan of cooperation between the domestic science kitchen and the lunchroom which has been in operation in the high schools of Sioux City, Iowa, since October 1914.

1212. **Hummel, W. G.** Utilization of land by high schools teaching agriculture. Part II. Home projects. University of California chronicle, 17:309–19, July 1915.

1213. **Lane, C. H.** *and* **Heald, F. E.** Correlating agriculture with the public schools in the northern states. Washington, Government printing office, 1915. 42 p. 8°. (U. S. Department of agriculture. Bulletin no. 281)

Suggests ways and means by which the public school teacher may utilize home projects in correlating agriculture and farm problems with the regular school work. Illustrated.

1214. **Stimson, Rufus.** The Massachusetts home project plan of vocational agricultural education. School review, 23:474–78, September 1915.

A striking feature of the work for 1914 was the fact that 235 boys, in connection with good work at school, earned sums amounting to over $42,000, all but about $4,000 from farm work.

SCHOOL GARDENS.

1215. **Jarvis, C. D.** Children's backyard gardens under school supervision. Craftsman, 28:569–73, September 1915.

Work of the U. S. Bureau of education in promoting school gardens, etc.

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1216. **Marston, Anson.** The relation of the engineering schools to the profession, the state and the public. Bulletin of the Society for the promotion of engineering education, 6:68–81, September 1915.

Presidential address at the twenty-third annual meeting of the Society for the promotion of engineering education held at Ames, Iowa, June 22 to 25, 1915.

EDUCATION OF WOMEN.

1217. **Hughes, Helen Sard.** Can women make good? School and society, 2: 336–44, September 4, 1915.

The proportion of honors awarded to women decrease in the graduate years and the proportionate amount of scholarly production is far smaller than the proportion of women receiving academic awards. The writer says that there are three commonplace factors that are as essential to academic success as intellectual gifts and they are health, money and time. These three factors operate against the academic success of women.

1218. **McVea, Emilie W.** The effect of recent educational developments upon the higher education of women. Education, 36:11–19, September 1915.

Writer says that a college education is increasingly essential to leadership in business or professional life. Schools and colleges should adjust themselves to the actual conditions of life. Training and efficiency and not sex should be the test of fitness for any professional or business career.

1219. **Young, Rose.** Your daughter's career. Good housekeeping magazine, 61: 308–15, September 1915.

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NEGRO EDUCATION.

1220. **Ashmore, Otis.** A Savannah school of industry. Southern workman, 44: 485–90, September 1915.

Work of the new Cuyler street school, Savannah, Georgia, which has accommodations for one thousand pupils. Devoted to the industrial education of colored children.

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1221. **Fryer, John.** The education of the Chinese blind. A paper read before the convention of the American association of instructors of the blind and American workers for the blind held at Berkeley, California, June 28th to July 3rd, 1915. [Berkeley, Cal., 1915] 12 p. 8°.

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A demonstration arranged to exhibit "the possibility of teaching deaf children, whether congenitally or adventitiously deaf, to speak and to read the lips, and to receive their education by means of exclusively oral methods."

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1223. **Bancroft, Margaret.** Collected papers of Margaret Bancroft on mental subnormality and the care of mentally subnormal children. Philadelphia, Ware brothers company, 1915. 102 p. 8°.

1224. **Johnson, Eliza.** Special classes for misfit pupils. Pennsylvania school journal, 64: 17–21, July 1915.

Says that individual help for misfits should be met by establishing ungraded or coaching departments in every school. Shows how the coaching departments in Pittsburgh are conducted.

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1226. **Wallin, J. E. Wallace.** The problem of the feeble-minded in its educational and social bearings. School and society, 2: 115–21, July 24, 1915.

An address delivered, in substance, before the Women's council of St. Louis, April 1, 1915.

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1228. **McClenahan, Bessie A.** Social service by a state university. Survey, 34: 485–87, August 8, 1915.

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1229. **Reber, Louis E.** University extension—its scope and administration. School and society, 2: 145–52, July 31, 1915.

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1230. **California. State library, Sacramento.** California library service. Economical, equal, complete . . . Sacramento, California state printing office, 1915. 27 p. map. 8°.

Compiled to explain the California library service in connection with the map exhibited at the Panama-Pacific international exposition.

DEPARTMENT OF THE INTERIOR
BUREAU OF EDUCATION

BULLETIN, 1915, NO. 41

SIGNIFICANT SCHOOL EXTENSION RECORDS

HOW TO SECURE THEM

By CLARENCE ARTHUR PERRY

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WASHINGTON
GOVERNMENT PRINTING OFFICE
1915

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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, September 20, 1915.

SIR: Within the past few years there has been a very remarkable increase in public school extension and the wider use of school buildings and equipment. This extension work has taken many forms, all of which, however, are intended to be supplementary to the regular school work. In order that records of this work may be kept and that teachers, school officers, and students of education may be able to compare the school extension work of one city with that of another, it is very desirable that there shall be some uniform system of records. At my request such a system has been worked out very carefully by Mr. Clarence Arthur Perry, of the Russell Sage Foundation. This Bureau has undertaken to provide the proper blanks for use in working out this system, and Mr. Perry has had the hearty cooperation, advice, and suggestions of many school superintendents and their assistants. I recommend that this manuscript be published as a bulletin of the Bureau of Education.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

SIGNIFICANT SCHOOL EXTENSION RECORDS.

UNIFORMITY IN RECORD KEEPING.

A manufacturer of pig iron computes his cost per ton in exactly the same way year after year, because such figures faithfully mirror the efficiency of his producing plant. If cost per unit does not decrease with increase of output, something is generally wrong and an examination is started. But change the method of figuring costs and his system is at once put out of joint. In no field of production is there an unvarying level of per unit cost. New refinements of process, new economies in operation are continually appearing, and unless the records of output or results kept before the changes are precisely comparable with those kept afterwards, the value of the improvements can not be correctly appraised.

A manufacturer not only insists upon uniformity in the *successive* computations of his costs, but he would pay a very liberal price if his business competitors would use *his* method in calculating their costs and let him have the figures. The advantage of knowing a rival's cost figures, which is so eagerly sought and so seldom attained by the private entrepreneur, may be enjoyed freely and openly by public-service administrators if they but observe a very simple requirement. They have only to agree upon what facts about their common operations they all desire to know, to put into practice in their own offices indubitable methods of collecting the data agreed upon, and to transmit them to the central tabulating and publishing agency.

School extension officials have as yet received no appreciable benefit from the statistics of systems other than their own, because the data published in the various offices are not comparable. A city's statistics for one year can be compared with its own figures for previous years, but seldom with those put out by any other city. Whether city A, with its form of administration, makes one dollar accomplish greater, equal, or smaller results than city B obtains from the same amount of money with its kind of machinery nobody can tell from the reports at present published.

A notion is abroad that there are two kinds of statistics, one set for publication and another for administration, and that they are necessarily different in nature. It is because this fallacious idea has

been so generally put into practice that statistics have been stigmatized as "dry." As a matter of fact, few figures are more intrinsically interesting than those which heads of great corporations demand of their engineers and statisticians and upon which they rely so largely for guidance in the conduct of their businesses. Unless data enable the beholder to grasp easily and quickly the vital facts of an operation, its cost in human effort, and its results in human happiness, they are worthless to both the student and the administrator. They can not be of value for the direction of the enterprise without having a meaning for the investigator and the historian.

Agreement upon the vital and recordable facts in school extension has not yet been feasible, because its activities are still so varied and unstandardized. With the maturing of after-school systems, however, programs will become more and more alike in fundamentals, and the ideas of administrators as to the facts that should be recorded will gradually approach agreement. But by that time the local record-keeping methods will have become so crystallized and so embedded in administrative machinery that bringing them into conformity with a uniform system will be a painful and difficult task. And the past data will not often be comparable with those which are collected after standardization has taken place. So, while any attempt to promote agreement and uniformity in school-extension record keeping at this early stage must necessarily be beset with many obstacles, any progress that may be made is bound to reduce the strain of future readjustments and to hasten the benefits of standardized reports.

Agreement among the authorities upon the recordable and desirable facts of school-extension work, which is the first step in the securing of uniform records, might have been sought by means of the questionnaire method. It did not seem, however, a hopeful way of beginning. The terminology in this field is still unfixed, the experience of administrators is widely varied, and the undertakings in many municipalities are as yet entirely too tentative in organization to make it at all probable that a sound consensus of opinion could be obtained through a circularization of the officials in charge.

The only other way of initiating a movement for uniform records is represented by the present endeavor. It consists of a tentative definition of the school-extension facts which are deemed worthy of systematic collection, an explanation of their worthiness, and a series of blank forms designed to facilitate the keeping of the suggested records.

Many of the kinds of school-extension facts which are defined herein were used in a recent bulletin of this bureau, entitled "The Extension of Public Education," [1] and some notion of their significance and value

[1] Bulletin, 1915, No. 28.

can be obtained by a perusal of that study. It is believed, however, that school officials will be best able to pass upon the merits and the defects of this scheme of record keeping only after having put it into full operation in their own systems. To make the data which individual systems may collect of use to all administrators, the Bureau of Education will collate and publish them in its annual reports. For this purpose a new questionnaire form, entitled "School Extension," has been devised,[1] and will be sent to superintendents of schools with the bureau's other annual blank forms, beginning with the scholastic year ending June, 1916.

In deciding what kinds of data should be included in the suggested schedule about to be set forth, several principles believed to be of fundamental importance were adhered to. It will be necessary to state these before the proposed schedule can be intelligently considered.

BASIC CONSIDERATIONS.

1. A school-extension report is the board of education's statement concerning the service of the school plant to the public over and above that which is traditionally expected from it. Such an account may therefore properly take cognizance of every occasion occurring upon school premises outside of the regular school hours.

2. The following circumstances do not detract from the value of an occasion as a form of school-plant utilization: That it was—

(*a*) Attended solely by the regular pupils.

(*b*) The meeting of an exclusive organization.

(*c*) The result of an unsolicited or unpromoted application from an outside organization.

(*d*) Open only to those who paid an admission fee.

(*e*) Of a miscellaneous nature and unconnected with the work of the school.

(*f*) One of a series devoted to a systematic educational undertaking closely related to the main work of the school.

In other words, any gathering of persons within school buildings for a specific purpose constitutes a reportable utilization.

3. Miscellaneous lettings of school accommodations to outside organizations are just as worthy of report as the occasions which are organized by school officials. If a ward improvement association is allowed to hold its meetings in a schoolhouse, it is a public service. If a private society hires a building at a rental which affords a profit, this helps, however little, to reduce the cost of school maintenance. So that, regardless of purpose, the use of school property outside of the regular academic periods means additional dividends secured from an immense public investment, and a statement of the gross amount of such realization is a fact of fundamental interest.

[1] See Appendix A.

School boards which attract outside organizations through hospitable letting regulations should avail themselves of the credit and approbation to which such larger use entitles them. They can secure their just deserts on this score only by making a full report of the facts to the public.

4. A complete school-extension report should include a summary of the regular evening-school work for the following reasons: (*a*) Evening school takes place in the marginal period. (*b*) There is a tendency to introduce social, recreational, and other extension activities into the evening-school program. (*c*) Some cities have charged the evening-school staff with the administration of the extension activities. (*d*) Administrative economy will some day insist that all the evening activities in a school building be conducted by a single-headed staff.

5. In large systems having separate departments for evening schools, lectures, after-school athletics, and other extension activities the school board should arrange for the compilation of a correlated report covering all of the after-school utilization. In that way only can the totality of the educational service rendered be made comprehensible to the public.

6. No use can be made of the terms "social center," "recreation center," "community center," "civic center," and the like, because these names do not connote a uniform and definite content of activity in the minds of school-extension workers throughout the country.

THE RECORDABLE AND DESIRABLE FACTS.

1. *The number of schools open after 6 p. m., and the number of times.* (And the same for the period after dismissal and before 6 p. m.).—This calls for a bald statement of the amount of extra service rendered by school property without any confusing details regarding the character of the after-school occasions. To say, however, of a given school system that during the year eleven buildings were open 100 times after 6 p. m., twelve 91 times, thirteen 74 times, fifteen 63 times, eighteen 29 times, and nine 5 times might be strictly accurate, but it would be a cumbersome and not very intelligible statement. Its awkwardness would become still more apparent if another similarly varied statement were placed beside it for the purpose of comparison. To give these facts in terms of number of schools which were open the various times a week, from one to six, would be a simpler and more comprehensible way, and entirely satisfactory if the length of the period reported upon were precisely the same in all cases. But most schools vary as respects both the frequency of evening events and the duration of the season of extension activity. Between the schools of the different cities also the variation upon these points is wide and constant.

A practical way out of the difficulty is that of making a few arbitrary groupings of all the possible numbers of times a building could be open after 6 p. m. during a school year, groupings which would be capable, when desired, of being translated into significant and easily comprehended terms. The groupings to be presented are based upon an assumed school-extension season of 30 weeks. Since organized extension work seldom gets under way until several weeks after the opening of school in the fall and is rarely continued into June, it was believed that this length of season would yield the best results. With 30 weeks as a common denominator, it is then practical to translate all the possible times open during the year into approximately equivalent times open per week—which means ever so much more to the ordinary human understanding. The groupings and their equivalents are shown in the following table:

Equivalents on the basis of a 30-week season.

Times open during year.	Times open per week.
29 or less	Less than one.
30 to 44	One.
45 to 74	Two.
75 to 104	Three.
105 to 134	Four.
135 to 164	Five.
165 to 194	Six.
195 or more	More than six.

According to this scheme, schools which were open six nights a week for 15 weeks might appear in published tables in the three-times-a-week class. Such a rating would not at first appear either fair or satisfactorily descriptive of the actual situation, but when it was remembered that the comparison was purely quantitative, it would be granted that the above-mentioned group was rightly placed in the same class with schools which were open, say, three times a week for 30 weeks. A greater unfairness might be worked by the grossness of the group divisions. Rating a school open 43 times in the once-a-week class would cause some injustice, but it might be offset by a school open 47 times which got into the twice-a-week class, and in the systems where *many* schools were entered such roughnesses would generally be fairly well smoothed out. The smaller cities might indeed suffer unfairness at times, but it seems impossible to formulate a significant classification without some sacrifice of the truth.

The value of this method will become more apparent in an illustrative example. Suppose we present in tabular form (Table 1) the fictitious records of 13 cities all translated, according to the 30-week schedule, into the terms of times open a week.

TABLE 1.—*Times schools were open for outside activities.*

Cities.	Schools open specified times a week.								All schools.	Schools open three or more times a week.	
	More than six.	Six.	Five.	Four.	Three.	Two.	One.	Less than one.		Number.	Per cent of all schools.
A	.....	1	2	5	20	41	32	19	120	28	23
B	.....	.....	.....	.....	6	10	20	20	56	6	11
C	1	10	4	6	90	29	100	60	300	111	37
D	.....	3	4	3	20	50	40	60	180	30	17
E	10	50	5	5	200	100	150	80	600	270	45
F	.....	.....	.....	.....	5	20	40	25	90	5	6
G	.....	.....	.....	.....	8	10	20	2	40	8	20
H	.....	.....	6	7	20	80	50	50	213	33	15
J	.....	1	2	3	17	20	40	40	123	23	19
K	.....	3	7	5	10	25	50	150	250	25	10
L	.....	.....	.....	.....	3	17	20	20	60	3	5
M	.....	.....	2	3	.....	.....	80	15	100	5	5
N	.....	.....	3	.....	4	.....	23	40	70	7	10
Total	11	68	35	37	403	402	665	581	2,202	.....	.....
Per cent	0.5	3	2	2	18.5	18	30	26	100	.....	.....

We should then be able to see at a glance how the several cities stood when all were reduced to a common denominator. From the totals we should learn that, altogether, the majority (or 30 per cent) of the schools were open only once a week, though 3 per cent reached as high as six times a week and 26 per cent were open three or more times a week.

If we wanted to make a closer intercity comparison, we could fix upon some frequency that seemed specially significant and compute for each city the proportion of its schools which had attained that standard. Such a calculation is presented in Table 1. A frequency of three or more times a week has been taken as a criterion, and according to the figures city E leads with 45 per cent, city C is second, and city G is third, while cities L and M stand at the bottom.

Data upon the amount of after-school utilization, when presented in this form, are susceptible also to other methods of comparison. They are easily collected if every after-school occasion is systematically recorded under its proper date.

2. *How much extension work was accomplished.*—What is the measure of extension work? According to the statistics usually given in social-center reports the prevalent opinion is apparently that the amount of extension activity is expressed by the attendance produced. But does a neighborhood meeting of 300 people necessarily represent 10 times the effort required in bringing about a full boys' club meeting of 30 members? Might not the effort be indeed about the same in both cases? Are there not certain occasions, such as classes, handicraft groups, and club dances, which are limited as respects numbers by their form of organization? Surely, aggregate attendance alone could not be fairly used in comparing on the score

of efficiency a school center running motion-picture shows with one devoted entirely to club work.

The object of administrative energy in school extension is always to bring a group together. Library and employment bureau staffs and election officials do indeed deal with individuals, but these constitute about the only exception to the group rule. By "group" is meant a class, an audience, a club meeting, a party, or any other collection of individuals who are participating in or engaged by the same series of events. One meeting of one group is a *group occasion*, and it is this expression which seems best fitted to serve as the unit of product in any attempt to measure output or accomplishment in this field. The total number of group occasions held during a given period at a school center is, it is believed, a more significant general summary of the work performed than the aggregate attendance.

A group ordinarily corresponds to the people gathered in one room. Two lectures to two distinct audiences never go on simultaneously in the same auditorium. Two classes may indeed crowd together into the same classroom, but in such a case they always join in the same exercise and become one group. Gymnasium classes often break up into squads, but here the whole class, not the squad, constitutes the group, since it is the complete object of the organizing energy expended upon the occasion. If in a large hall or a basement playroom two sets of people were doing different things under different leaders, they would constitute two groups. The criterion is always whether or not all the members of the body are engaged, either as participants or as spectators, by the same series of events.

A group, as a rule, holds only one main occasion an evening. As lectures, dances, basket-ball games, public discussions, and club meetings usually go, only one is held in a given room during an evening. In the afternoon interval, between dismissal and 6 p. m., there is usually time for but one occasion in the same place. Throughout the country these afternoon or evening happenings in schoolhouses generally last around an hour and a half or two hours, so that in respect to duration the group occasion makes a fairly uniform unit of measurement.

Group occasions are easily recorded. For a regular evening school the total number of group occasions is the sum of the total number of meetings held by each class. In a lecture course the whole number of lectures held is the number of group occasions. In a word, the record for any one group is the number of evenings, or afternoons, or both, on which they have met during the period covered by the report.

3. *The classification of group occasions.*—The variety of the events which are taking place in schoolhouses is so great that to inventory all of them and to report the total number of occasions of each particular kind would be an exceedingly laborious process, and, besides,

the results thus gained would be unwieldy and of little value for comparative purposes. To state the total of group occasions, on the other hand, and give no description of their character is not sufficiently informative. What is needed is a division of the various activities into classes such that each includes all those which exercise the same general human effect and show a similarity of procedure or organization. Each class should represent a line of activity as distinct as possible both externally and internally from all the others and there should be as few classes as may be consistent with a comprehensive classification.

In gathering and presenting the material of the previously mentioned bulletin on The Extension of Public Education, a classification of extension activities was used which proved so workable and so significant that it was deemed worthy of employment in the suggested schedule.

Classes of activities.

Code letter.	Activity.	Dominant effect.
NS	Night school	Cultural.
L	Lectures	
E	Entertainments (concerts, etc.)	
SM	Society meetings (adults)	Civic.
CM	Civic occasions, mass meetings, public discussions	
A	Athletics, gymnastics, bathing, active games, or folk dancing	Recreational.
C	Clubs (social, athletic, etc.) or groups (musical, handicraft, etc.)	
R	Rooms open for quiet games, reading, or study	
D	Dancing (social)	Social.
S	Social occasions (parties, banquets, etc.)	

When the list of the lines of activity in the above classification was first written down, it was found that without changing the order they fell naturally into groups having more or less dominant effects. Of course this grouping can not be pushed too far. The study room and musical groups oftentimes would be considered to be more obviously cultural than recreational in their effect. Study rooms and musical or handicraft groups are placed where they are because of the similarity of organization to the other activities in their respective classes. The labels, "cultural," "civic," etc., therefore are to be regarded, not as guides, but as coarsely interpretative of the more conspicuous effects of the various lines of activity to which they are attached.

Alliterative code letters are employed in the belief that they are more quickly memorized than numerals and practically as easy to write. The purpose of the code letter is to facilitate separating and labeling the different parts of a program for the evening report.

In the application of this classification a group occasion is labeled according to the line of activity which occupied it during the larger portion of the evening. A parent-teacher association might have a regular meeting and a lecture the same evening. In that case it should not be credited with the two lines of activity, but classed

either as a lecture or a meeting, according to which event occupied the group the major part of the evening. In the same way a young people's club might have its meeting and a social dance the same evening. If the dancing came at the close, or was incidental to the club meeting, it would be grouped under (C) club work; if the dance was the main feature of the occasion, it would be classified under (D) dancing.

In some systems local administrative needs will doubtless make it desirable to record the names or some other details regarding certain occasions. For this purpose additional space can be set aside on the reporting blanks. The specific names of occasions and other information thus recorded will of course not enter into the uniform reports.

4. *The amount of effort put forth.*—The two previous sections were concerned with the statement of how much work was accomplished. Next comes the question of recording the energy which went into the stated accomplishment. The unit of effort proposed here is that of one evening's work of one person. The record of the effort expended, therefore, is simply the record of attendance of the workers. The total amount of effort for the year is found by summing the evenings of service rendered by each of the workers in attendance. The only subdivision required for the uniform report is that of "paid" and "volunteer," and this record is made simply by writing "V" after the names of the volunteers, all other workers being considered paid workers. Assistants employed by voluntary associations or compensated out of private funds should be included among the paid workers. The compensation[1] they receive will appear in the financial statement as a donation. This record is all that is required under this head for the bureau's school-extension questionnaire.

Important administrative needs will, however, be met by correlating the records of workers with the group occasions they conduct or produce. Records kept this way will enable the supervisor to say what workers produced what amounts of work, and they will be of service to him in rating the staff for promotion. Furthermore, if the group occasions are correlated with their respective workers, it will be possible to make an accurate analysis of the cost of the various lines of activity. For example, suppose there is a record of one evening's work—a dance and some club meetings—in a certain school, like the following:

TABLE 2.—*Record of one evening's work.*

Workers.	Groups.	Activity.	Attendance.
Brown ($4) Jones ($2)	1	D	300
Smith ($2.50) Janitor ($2)	7	C	210
Total, 4 ($10.50)	8		510

[1] See the exception to this rule which is made on p. 22.

The amounts in parentheses are nightly wages. If the janitorial expense be divided equally between the two activities the following financial statement can be made:

TABLE 3.—*Cost of one evening's work.*

Activities.	Total cost.	Cost per group.	Per capita cost.
			Cents.
Dancing	$7.00	$7.00	2½
Club work	3.50	.50	1¾

This instance also shows how the record of Smith could be compared with the record of some other worker in the same line of activity, but at the same time it illustrates the difficulty there would be in comparing in the same way the work of Jones, because his results are merged with those of Brown. The results achieved by the pair, however, could be compared with those of another pair in the same field. Another advantage of this form of record is that it shows in what lines of activity volunteers can be used and in what degree. This information can only be obtained by plainly relating work to worker. Undertakings in which, at first sight, such correlation seems impracticable should be looked into more closely. It may be found that the real trouble is looseness of organization.

Some difficulty will doubtless be experienced in determining how many workers should be credited with the production of a miscellaneous meeting, concert, or entertainment. As a general rule it can be laid down that all the persons who managed or directed the program, plus such people as the ticket taker, the stereopticon operator, and the janitor or engineer, should be included in the number of workers for the given occasion. The performers in a concert or entertainment have the same status as the players in a basket-ball game attended by spectators. In the case of a meeting of a parent-teacher association or a ward improvement organization, the presiding officer and secretary plus the janitor should be recorded. In general, the rule would be that all persons present except performers who were indispensable for carrying on at the time the activity which attracted the audience should be counted as workers on that occasion. It may not at first seem important to keep a record of these details in regard to the many miscellaneous occasions which occur in public school buildings during the year, but, as has already been pointed out, these affairs do constitute a considerable part of extension activity, and some record of them is necessary for a comprehensive statement of the afterclass utilization. One dimension of a miscellaneous occasion is the number of the persons who produced it.

5. *The reach of the extension work.*—How many people enjoyed its benefits? The answer to this question must be sought in the attendance records. The best way of securing attendance data is to ask the workers to furnish the figures for their respective groups. A correlation of worker, group, and attendance was shown in the illustrative tables presented above. The aggregate attendance at an occasion is obtained by summing the attendance of the various groups which make up the occasion.

Attendance records are often difficult to obtain, and for that reason they are not asked for in the bureau's school-extension questionnaire. They are, however, needed for intelligent administration and constitute valuable material for publicity purposes. In a detailed study of the work at a school center it would be helpful to have the attendance records subdivided according to sex and age groups, but this is a difficult procedure, and in respect to age groups can ordinarily only be approximated. Some knowledge, however, of the ages of those who attend, for example, motion-picture performances, is often needed. While a passive amusement, such as that afforded by the motion pictures, is a desirable recreation for an adult who has devoted the day to muscular labor, it can be too immoderately indulged in by youths and children, whose leisure might more profitably be devoted to active occupations.

In some school-extension systems it will be desirable on occasion to ascertain the total number of different individuals whose lives are touched by the school-center activities. Such a study can only be made through some sort of registration scheme, a procedure which would be too burdensome for many systems to undertake, especially in the early stages of their work.

6. *The maintenance cost.*—The monetary expenditure involved in producing an event is a matter of interest, because money is transmuted human effort. The energy used in producing an activity once shows what it will cost approximately to produce it again. Is it worth the effort? The question can not be answered until the amount of the first or preceding effort is known in comprehensible terms, that is to say, in the terms of money.

As ordinarily computed, the cost of maintaining extension activities includes salaries, equipment, supplies, and janitorial expenses. Of course, there are also extra expenditures in connection with the heating and lighting of the building, but these as well as the depreciation in building value and the interest on the investment are not ordinarily figured in on account of the difficulty of calculation.

Extension work, even though conducted by the municipality, often receives some private support, either in the form of direct money contributions or of gratuitous service. When a volunteer assistant

is paid by an outside organization, the salary of this worker should be reckoned as a donation. The value of distinguishing between the public and the private funds consumed in extension work lies in the information which such data furnish as to how the financial burden is distributed among the taxpayers.

Occasionally a local association which conducts extension activities has its headquarters in the school where it functions. When such an organization derives its operating funds from pay entertainments, club fees, and other profitable activities carried on within the school premises, its receipts and disbursements should not be included in the financial statement of the school's extension work. If this organization were, however, promoted and conducted by a paid organizer, his salary, or such part of it as represented the portion of his time given to the organization in question, should be included in the maintenance cost. The distinction here arises from the consideration that a neighborhood organization of this character, which organizes and assumes responsibility for the recreational life of its people, is considered an end in itself rather than as a means of extension effort.

A record should be kept of all fees received during the year from the rental of school buildings for after-school use. Items of cost may be computed monthly or at the end of the year, but some record should be made of all items of expenditure or income at the time they occur.

EVENING SCHOOLS.

Ordinarily no records of the evening schools will need to be kept upon school extension blanks during the progress of the season, since the records usually kept by evening school officials will be adequate for filling in the data required for the summary of the extension work at the end of the year.

AFTERNOON EXTENSION ACTIVITIES.

Regarding the occasions taking place after dismissal and before 6 p. m., it is thought that of these it would be worth while to record only their number, the number of the groups attending, and the distribution of the group occasions among the classes of activities.

SUMMARY.

The requirements of the school-extension schedule set forth above may be summarily enumerated as follows: (All, *except those in parentheses*, are needed to answer the Bureau of Education's questionnaire upon school extension.)

(1) A dated record, with name of school, of each after-school occasion, indicating whether before or after 6 p. m.

(2) The number (and the names) of the workers in attendance at each after-school occasion, subdivided according to "paid" and "volunteer."

(3) The number of distinct groups in attendance upon each occasion.

(4) Group occasions labeled and recorded in accordance with the uniform classification of activities.

(5) (Attendance recorded by groups.)

(6) (Group occasions related to the respective workers.)

(7) A record of the salaries of workers and supervisors, including janitors, and of the expenditures for supplies and equipment occasioned by after-school activities. In addition a record of all funds used in the maintenance of extension activities which were received from private sources, including the compensation of workers hired and contributed by voluntary associations.

(8) A record of the rentals accruing from the letting of school accommodations to outside organizations.

SUGGESTED BLANK FORMS.

The forms on pages 20, 21, 23, 24, 25, and 31 have been designed to carry out the ideas expressed in the foregoing pages. School officials who adopt them may sometimes wish to modify them slightly to fit local needs. The changes should not, however, be such as to vitiate the essential principles of the method. Samples of two of the forms—the daily and the monthly Uniform School Extension Record blanks—can be obtained by application to the Commissioner of Education, Washington, D. C.

UNIFORM SCHOOL EXTENSION RECORD—DAILY.

This blank, a copy of which, filled in with fictitious data, is shown on pages 20 and 21, is printed on a thin sheet, 8 by 10½ inches, and bound in pad form, with directions (see copy of these in Appendix B) printed on the cover. By the use of a carbon duplicate, copies can be made of all reports. The filling in can be done by the principal, director, or any other competent person. The blank is specially designed to meet the requirement of a report to the central office upon each occasion, as soon as it occurs, and provides for a definite correlation of the worker, group, activity, and attendance.

In entering the names of workers, initials can be omitted after the first report or used in the place of names in cases where this can be done without loss of clearness. The making of the report will be facilitated and administrative efficiency will be favored if the director can ask each worker who is in charge of a group to furnish him, at the end of the evening, a brief penciled statement of his work on a

UNIFORM SCHOOL EXTENSION RECORD (DAILY).

STUDY DIRECTIONS BEFORE MAKING ANY ENTRIES.

ACTIVITIES AFTER 6 P. M.

CITY, ...*Any town*.....

STATE, ...*A. S.*..... SCHOOL, ...*Horace Mann*..... DATE, ...*January 1, 1916*.....

CLASSES OF ACTIVITIES AND THEIR CODE LETTERS.

NS=Night school.
L =Lectures.
E =Entertainments (concerts, etc.).
SM=Society meetings (adult).

CM=Civic occasions, mass meetings, public discussions.
A =Athletics, gymnastics, bathing, active games, or folk dancing.
C =Clubs (social, athletic, etc.) or groups (musical, handicraft, etc.).

R=Rooms open for quiet games, reading, or study.
D=Dancing (social).
S =Social occasions (parties, banquets, etc.).

A "group" is a collection of individuals who are participating in or engaged by the same series of events. Ordinarily the persons in one room constitute one group.

(1) WORKERS. (Report all workers present, putting names of those handling same group on adjoining lines and covering with bracket. Mark volunteers "V.") *C. Robinson*, in charge.	(2) GROUPS. (Opposite each worker, or set of workers, write the number of groups conducted.)	(3) ACTIVITY. (Write proper code letter on the line with each group entry.)	(4) ATTENDANCE. (Enter for each group, no person counted twice.)	(5) MISCELLANEOUS.
Chairman.....*V*..... *Operator*..... *Ticket taker*.....*V*..... *Pianist*.....*V*.....	.....*1*.....	.....*E*.....	.....*625*.....	*Motion Picture Committee of Parent-teacher Association pay operator and other expenses from door receipts.*
Chairman.....*V*..... *Secretary*.....*V*.....	.....*1*.....	.....*S M*.....	.....*38*.....	*Ward Improvement Association (special meeting).*

Roe ①	*1*	*A*	*31*	
Doe	*4*	*C*	*64*	*Boys, 34; Girls, 30.*
Robinson	*1*	*R*	*26*	
Brown ③				
2 Chaperones... V.	*1*	*D*	*62*	*Dreadnoughts and Arcadian Clubs. Music Provided by Dance Committee of Parent-teacher Association.*
2 Musicians				
Janitor				
Engineer				
Paid....*9*.... Volunteer..*7*.. Total...*16*...	*9*		*846*	

(6) REMARKS: ① *Roe 30 minutes late.* ③ *C. N. Brown, substitute, $1.50 per evening. Ward Improvement Association wish to transfer their meeting place to eighth-grade room on third floor. Desired room is not wired for electric lights. They will pay extra expense if there are no funds in budget. Please advise.*

C. ROBINSON, Director.

printed form like that shown herewith. Pads of such blanks could be made up very cheaply. Their use would automatically induce definiteness in arranging the work and give a businesslike tone to the whole undertaking.

.....	, 191...
Groups	
Activity	
.....	
Attendance	
Name	
Other workers	.....
	.....
	.....

No specified space is allotted in this form, or any of those to follow, for financial data. Salaries are paid and all disbursements for equipment and supplies are usually made from the central office, so that it is always in possession of such data and there is no necessity for bothering the local staff to report upon them. In the case, however, of an extension undertaking maintained by a voluntary organization any sums paid out in salaries or donated for supplies and equipment which had not gone through the central office could be reported in the Miscellaneous column or under "Remarks." This applies only to organizations which have their headquarters outside of the school in question and which raise their funds outside of the school building. Local parent-teacher or social-center associations belonging to the school, meeting in it, managing occasions in it, and raising funds for its work through admission fees to dances, entertainments, and motion-picture exhibitions—such bodies are in a different class. They are to be regarded as the products or ends of administrative effort and should not be inventoried among the means. The money they spend upon lantern operators, musicians, and other temporary workers is a by-product of that particular form of administration and not a disbursement from municipal or private funds. For this reason it is not included in the maintenance cost. For disciplinary and social reasons it may become necessary to ask such associations to render financial reports to the school authorities, but when that time comes, truly significant accounting will still keep separate the receipts from these two classes of voluntary associations.

In the list of workers, however, those who are paid by the local association are reported in the same class with those belonging to the school-board staff and those who are paid by outside voluntary societies. The purpose here is to record the total number of evenings of personal service, (*a*) paid and skilled and (*b*) unpaid and generally unskilled, which were required to produce the total number of group occasions; and in this connection the source of the compensation is immaterial.

The fictitious record shown in the facsimile is that of a Saturday evening in a school center which enjoys the benefit of an efficient paid corps and a live parent-teacher organization. The latter body, through its motion-picture committee headed by a public-spirited business man, runs a weekly entertainment in the auditorium. The local ward improvement association is holding a special (crowded) meeting in the principal's office. Two boys' clubs and two girls' clubs are meeting in classrooms. A basket-ball game is held in the gymnasium and the director of the center is keeping an eye on the reading room, which has been established in an abandoned classroom. In the kindergarten a small subscription dance—one club entertaining another—is being held under the patronage of a committee of the parent-teacher association.

The tabulation of the data on this blank may follow either one of two methods, depending upon whether it is desired (1) to assemble only the information required to answer the United States Bureau of Education's annual school-extension questionnaire or (2) to do that and, in addition, correlate attendance with specific workers, segregate the costs of the various lines of activities, and analyze the returns in other more detailed ways. For method No. 1 the following headings are sufficient:

SCHOOL *Horace Mann* MONTH OF *January, 1916*

Dates open.	Group occasions by activities.											Workers (evening-school teachers not included).		
	NS	L	E	SM	CM	A	C	R	D	S	Total.	Paid.	Volunteer.	Total.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.....	.....	....	1	1	.....	1	4	1	1	....	9	9	7	16

The data regarding attendance of the individual staff workers on the daily record blank could be used in making up the pay roll, and from these records together with statements of the expenditures for supplies and equipment would come the fiscal information needed for the school-extension questionnaire.

MONTHLY RECORD SHEET.

[This form exhibits tabulation method No. 2. It allows a much more detailed treatment of the returns brought in by the daily blank.]

SCHOOL *Horace Mann.* MONTH OF *January, 1916.*

Date.	Attendance of general staff.			Athletics, etc.			Clubs and groups.				Games and reading room.		Dancing (social).			Miscellaneous occasions.					Total.		Remarks.
	Robinson (director).	Janitor.	Engineer.	Roe.	Jones.	Brown (substitute).	Doe.	Smith.	Brown.	Jenkins and Schmidt (private).	Roe.	Robinson.	Attendance.	Workers. Paid.	Workers. "V".	Attendance.	Activity.	Auspices.	Workers. Paid.	Workers. "V".	Groups.	Attendance.	
1	...	1	1	31	...	...	⊛64	...	...	...	...	26	62	Brown; 2 musicians (private).	2	625 38	E SM	Motion-Pict. Com.; Parent-Teacher; Ward-Impt. Assn.	Operator (private).	3 2	9	846	Motion-picture operator paid by association.
3	....	1	1	69	...	34	⊛75	...	...	...	...	40	....	.....	.....	60	SM	Parent-Teacher Assn.	.....	2	9	278	
4	....	1	1	...	30	...	...	⊛60	30	...	26	....	....	.....	.....	150	L	Bd. of Education...	Robinson; lecturer.	.....	7	296	
5	....	1	1	72	...	32	⊛64	...	...	...	...	50	....	.....	.....	.....	.....	.....	.....	.....	7	218	
6	1	1	1	...	33	...	...	⊛68	28	...	50	....	....	.....	.....	.....	.....	.....	.....	.....	7	179	
7	....	1	1	...	...	...	...	...	...	101	...	...	308	Robinson; 3 musicians (private).	5	.....	.....	.....	.....	.....	2	409	Jenkins and Schmidt paid by Choral Society.
8	....	1	1	19	...	...	⊛28	...	...	...	...	23	....	.....	.....	701	E	Motion-Pict. Com.; Parent-Teacher Assn.	Operator (private).	4	5	771	
10	....	1	1	80	...	42	⊛96	...	...	...	...	38	....	.....	.....	100	SM	Ward-Impt. Assn...	.....	2	10	356	
11	1	1	1	...	40	...	...	⊛105	31	...	48	....	....	.....	.....	.....	.....	.....	.....	.....	8	224	
12	....	1	1	85	...	44	⊛80	...	...	...	...	52	....	.....	.....	.....	.....	.....	.....	.....	8	261	
13	1	1	1	...	26	...	...	⊛100	34	...	27	....	....	.....	.....	.....	.....	.....	.....	.....	7	187	
14	....	1	1	...	...	...	...	...	...	98	...	...	322	Robinson; 3 musicians (private).	5	.....	.....	.....	.....	.....	2	420	Musicians paid by Parent-Teacher Assn.

15	....	1	1	21	....	....	⑧45	....	....	....	....	25	....		....	716	E	Motion-Pict. Com.; Parent-Teacher Assn.	Operator (private).	4	6	807
17	....	1	1	73	....	36	⑦105	....	....	....	....	47	....		....	58	SM	Parent-Teacher Assn.		2	11	319
18	....	1	1	....	32	....	....	⑤88	32	....	35	....	....		....	200	L	Bd. of Education	Robinson; lecturer	....	8	387
19	....	1	1	68	....	30	④60	....	....	....	....	47	....		....	....	....	....	....	....	7	205
20	1	1	1	....	28	....	....	⑤75	36	....	42	....	....		....	....	....	....	....	....	6	181
21	....	1	1	....	....	....	....	....	....	105	....	....	290	Robinson; 3 musicians (private).	5	....	....	....	....	....	2	395
22	....	1	1	22	....	....	④48	....	....	....	....	20	....		....	750	E	Motion-Pict. Com.	Operator (private).	4	7	840
24	....	1	1	78	....	40	⑥80	....	....	....	....	31	....		....	60	SM	Ward-Impt. Assn.		2	9	289
25	1	1	1	....	30	....	....	⑤80	33	....	40	....	....		....	....	....	....	....	....	7	183
26	....	1	1	70	....	41	④59	....	....	....	....	42	....		....	....	....	....	....	....	7	212
27	1	1	1	....	27	....	....	④64	35	....	43	....	....		....	....	....	....	....	....	7	169
28	....	1	1	....	....	....	....	....	....	102	....	....	299	Robinson; 3 musicians (private).	5	....	....	....	....	....	2	401
29	....	1	1	25	....	....	④60	....	....	....	....	21	....		....	503	E	Motion-Pict. Com.	Operator (private).	4	7	609
31	....	1	1	68	....	42	⑥90	....	....	....	....	35	....		....	70	SM	Parent-Teacher Assn.		2	10	305
Attendance	....	....	....	781	246	341	954	640	259	406	311	497	1,281		....	4,031	....	....	....	....	....	9,747
Groups	....	....	....	14	8	9	63	31	8	4	8	14	5		....	13	....	....	....	....	....	177
Average	....	....	....	56	31	38	15	21	32	102	39	36	256		....	....	....	....	....	....	....	55
Evenings of work.	6	26	26	14	8	9	14	8	8	8	8	14	....	Brown, 1; Robinson, 4; private, 14.	22	....	....	....	Robinson, 2; operator (private), 5; lecturer, 2.	31	....	230

MONTHLY RECORD SHEET.

Method No. 2 of tabulating requires a larger sheet (10½ by 16 inches is a good size) and one which would have to be prepared especially for each school. The manner of using such a sheet is illustrated by the fictitious data shown on pages 24 and 25. On the first line has been entered the information contained in the daily record blank shown on pages 20 and 21.

The main principle of arrangement is that of placing the names of the regular staff workers at the heads of columns grouped under their respective lines of activity. Each entry in the column headed "Roe" denotes an evening's work for Roe, one group occasion in athletics, the number of persons in attendance, and, by the line on which it appears, the date of the occasion. The exponent 4 in the first entry under "Doe" signifies that four groups made up the attendance of 64 persons. Lines of activity in which different workers engage, like "Dancing (social)," require extra spaces for the data regarding workers, their names being entered on the same lines with the respective attendances. The miscellaneous occasions require columns for the attendance, activity label, auspices, and record of the workers. Another column should be set aside for indicating the attendance of the general workers, such as the director, janitor, and engineer, also a space for explanatory remarks and a couple of columns for entering the daily group and attendance totals. It will be observed in the printed example that the accuracy of these latter totals is checked by the attendance and group totals of the vertical columns.

In the hands of an intelligent principal or director, this sheet could be used for original entries and the daily record blank be omitted altogether. In cases where the central office does not require a daily or nightly report, considerable labor is saved by the use of this monthly sheet, since the record for one evening is all contained in the row of figures and brief notes on a single date line. By having the workers in charge of groups make reports on little printed slips like the form shown on page 22, the director's work is reduced to a minimum. The filled-in sheets could themselves be forwarded to the central office as monthly reports, or summaries be submitted on a prescribed form.

The merits of this form are best seen in the significance of the information it assembles. As an illustration let us analyze the fictitious data presented in the table. Taking the gross facts first, we see that the aggregate attendance at the evening occasions for January at the Horace Mann school was 9,747, an average of 375 for each of the 26 evenings the school was open. This attendance occurred at 177 group occasions, which consumed 230 evenings of personal service. The distribution of the attendance among the various lines of activity

is easily derived from the data presented and is shown in the following table:

TABLE 4.—*Group occasions and attendance by activities.*

Activities.	Group occasions.	Attendance per occasion.	Aggregate attendance.	Per cent.
Lectures	2	175	350	4
Entertainments (concerts, etc.)	5	659	3,295	34
Society meetings (adult)	6	64	386	4
Athletics, gymnastics, bathing, active games, or folk dancing	31	44	1,368	14
Clubs (social, athletic, etc.) or groups (musical, handicraft, etc.)	106	21	2,259	23
Rooms open for quiet games, reading, or study	22	37	808	8
Dancing (social)	5	256	1,281	13
Total	177	.....	9,747	100

The relation of impacts of effort to results is clearly shown in this array of figures. Club meetings constitute 60 per cent of all the groups cared for, but they gave only 23 per cent of the attendance. Over two-thirds of the attendance came from the "movie" shows, which constitute less than 3 per cent of the occasions. Furthermore, we see how the attendances run with the various kinds of activity, 21 at the club meetings, twice as many at basket ball, 175 at lectures, and nearly four times as many at the motion-picture entertainments—figures which throw interesting sidelights upon our tastes and manner of grouping during leisure time.

After sizing up our products it is always worth while to inventory the expenditures of energy which they cost. These are shown in the accompanying tabulations of evenings of service and the amounts paid for salaries, supplies, and equipment. The rates of pay set down approximate those prevailing in the school centers in New York City.

Evenings of service and expenditures.

Salaries of workers:	Evenings.	Rate.	Amount.
Robinson	26	$4.00	$104.00
Roe	22	2.50	55.00
Jones	8	2.00	16.00
Brown (sub.)	18	1.50	27.00
Doe	14	2.00	28.00
Smith	8	2.00	16.00
Janitor	26	2.00	52.00
Engineer	26	2.00	52.00
Lecturer	2	10.00	20.00
Total	150	.....	370.00
Supplies			10.00
Equipment			15.00
Total cost			395.00

Workers paid from private funds.

Workers:	Evenings of service.	Organization employing.
Jenkins	4	Choral society.
Schmidt	4	Do.
Operator	5	Parent-teacher.
Pianist	5	Do.
Violinist	5	Do.
Drummer	4	Do.
	27	
Volunteers	53	
Total	80	

From these tables it appears that the regular staff contributed 150 evenings of service, the workers hired by the parent-teacher association, and the choral society 27 evenings, and the volunteers 53 evenings. In all, 80 evenings, or about 35 per cent of the service, cost the taxpayers nothing. After deducting overhead expenses, it can be said that about one-third of the burden of this work is borne by the people who are directly benefited by it. An interesting fact. Is it due to the character of Director Robinson's administration, or to the day principal, or to the enterprise of the community? Now that the fact is definitely known, an incentive is furnished for tracing the causes; when these are located and appreciated, steps can be intelligently taken to produce the same results at other schools.

From the standpoint of administration it is always valuable to be able to compute the cost of the various kinds of products or results. Which costs more per person, a dance or a lecture? Such data can be easily derived from the monthly record presented above. All the expenditures are correlated directly with their respective group occasions, except the following general items:

General expenditures.

Salaries of workers:	Evenings.	Rate.	Amount.
Robinson	6	$4.00	$24.00
Janitor	26	2.00	52.00
Engineer	26	2.00	52.00
			128.00
Supplies			10.00
Equipment			15.00
Total			153.00

The most equitable distribution of this amount among the various lines of activity is probably one based on the per cent of the aggregate attendance. Wear and tear on the building, consumption of heat and service, and the other aspects of enjoyment are probably more nearly proportional to the numbers of the enjoyers than to any other determinable set of conditions. The method, then, of comput-

ing the cost of the various lines of activity may be illustrated in the following case:

Cost of club and group occasions.

Salaries of workers:	Evenings.	Rate.	Amount.
Doe	14	$2.00	$28.00
Smith	8	2.00	16.00
Brown	8	1.50	12.00
Jenkins	4	.....	(1)
Schmidt	4	.....	(1)
			56.00
Share of overhead expenses, 23 per cent of $153			35.19
Cost of 106 group occasions			91.19
Cost of one group occasion			.86
Cost per person (average attendance 21) per occasion			.04

Making the same computation for each of the other kinds of activity we arrive at the following table:

TABLE 5.—*Cost by lines of activity.*

Activities.	Group occasions.	Total cost.	Average attendance.	Cost per person per occasion.
				Cents.
Lectures	2	$34.12	175	9.7
Entertainments (concerts, etc)	5	52.02	659	1.6
Society meetings (adult)	6	6.12	64	1.6
Athletics, gymnastics, bathing, active games, or folk dancing	31	85.92	44	6.3
Clubs (social, athletic, etc.) or groups (musical, handicraft, etc.)	106	91.19	21	4.0
Rooms open for quiet games, reading, or study	22	88.24	37	11.0
Dancing (social)	5	37.39	256	2.9
Total	177	395.00	.....	.....

We have now the basis for a number of reflections. Lectures cost more than motion pictures. Well, they are worth more—to the community. Yes, but are they worth six times as much? Six times! Perhaps. Anyway, we have got to do something to boost that lecture attendance. How would it do to stick in a film, before or after the talk? And look at the athletics and club work; they run higher than the adult society meetings. That's not strange. The youngsters require skilled leadership; the old people take care of themselves. But how about the reading room? Eleven cents—isn't that high? Well, let's see. Oh, yes; two-thirds of the time the reading room is run by the director, a $4 person. I suppose he can boss things better from that post than from any other. And so on. Consider, too, the comparison value of similar sets of figures, covering a whole season, from all the school centers of a city. All this is made possible by a report in which worker and results are clearly connected.

[1] Paid from private funds.

In a similar manner a study could be made of the attendances obtained by regular workers in like fields of activity. There may be some obvious environmental reason why club worker A. should have a higher average attendance than club worker B., but the reason may not be adequate to account for a difference as great as 100 per cent. The supervisor may be morally certain that worker C. is handling more people than A. or B. and increase his pay accordingly. The promotion, however, is likely to create discontent among C.'s associates unless the facts regarding his and their results are available in indisputable and comparable form. Such figures are always accessible in records like the monthly sheet displayed above.

UNIFORM SCHOOL EXTENSION RECORD—MONTHLY.

This blank, which appears on the opposite page, is a card 5 inches by 8 inches, with the directions printed on the back. (See copy of these in Appendix C.) It is designed to meet the needs of municipalities in which school-extension work is as yet neither very voluminous nor highly systematized, and much of which is composed of miscellaneous, sporadic occasions. It requires no records of attendance or listing of workers—simply entries of the group occasions according to kinds and notes of the number of paid and volunteer workers. The information gathered by the blank (when supplemented by the fiscal data) is adequate, however, for answering the bureau's school-extension questionnaire and for making to the public an interesting annual statement of the wider use of the local school plant. The headings for tabulating the returns brought in by this card would be as follows:

SCHOOL, *Franklin.* YEAR, *1915–16.*

Month.	Times open after 6 p. m.	Group occasions by activities.										
		NS	L	E	SM	CM	A	C	R	D	S	Total.
1	2	3	4	5	6	7	8	9	10	11	12	13
January												
February	18		1	1	2	1	4	19	4	3		35

Workers (evening-school teachers not included).			Expenditures.[1]				
Paid.	Volunteer.	Total.	Salaries.	Equipment.	Supplies.	Janitors.	Total.
14	15	16	17	18	19	20	21
48	24	72					

[1] To be filled in at the central office.

(Study directions on the back before making any entries).

UNIFORM SCHOOL EXTENSION RECORD (MONTHLY).

ACTIVITIES AFTER 6 P. M.

Total number of evenings building was open.
.....18.....

CITY, ...*Manitou*..... SCHOOL, ...*Franklin*.....

STATE, ...*N. M.*..... MONTH OF .....*February, 1916*..... ....*C. Robinson, Director*....

Under the appropriate dates enter the number of groups which engaged in each of the specified lines of activity.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	TOTALS.
1. Night school																																
2. Lectures									1																							1
3. Entertainments (concerts, etc.)																										1						1
4. Society meetings (adult)	1														1																	2
5. Civic occasions, mass meetings, public discussions																				1												1
6. Athletics, gymnastics, bathing, active games, or folk dancing		1							1							1							1									4
7. Clubs (social, athletic, etc.) or groups (musical, handicraft, etc.)		2	3						2	3						2	2						2	3								19
8. Rooms open for quiet games, reading, or study						1						1								1							1					4
9. Dancing (social)					1							1							1													3
10. Social occasions (parties, banquets, etc.)																																
TOTAL GROUPS	1	3	3		1	1			4	3		1	1		1	3	2		1	2			3	3		1	1					35
Number of workers in attendance, night-school teachers *not* included.... Paid	1	4	3		3	2			5	3		3	2		1	4	2		3	2			4	3		1	2					48
Volunteer	2				3	1						3	1		2				3	4						4	1					24

APPENDIX.

A. BUREAU OF EDUCATION SCHOOL EXTENSION QUESTIONNAIRE.

DEPARTMENT OF THE INTERIOR
BUREAU OF EDUCATION
WASHINGTON, D. C.

STATISTICAL DIVISION

ANNUAL REPORT, ...

..... (Name of city.) ..... (State.)

..... (Signature and title of officer making this report.)

The object sought in submitting this schedule is that of obtaining comparable data upon the amount and kinds of use being given to public schools outside of the regular day-class hours. Such information will enable the Bureau to furnish school authorities with significant statistics regarding the sweep, rapidity, and character of the extension movement as it develops in the several sections of the country and is influenced by the various State statutes. Facts of this nature will be helpful in determining what kinds of school buildings to construct and what demands are going to be made upon the school's administrative machinery. With a view to facilitating the collection of these data, daily and monthly blank forms have been devised, and these are presented in a bulletin entitled "*Significant School Extension Records, How to Secure Them,*" which can be had upon application.

Please fill this schedule and forward it to "The Commissioner of Education, Washington, D. C.," in the inclosed return penalty envelope.

SCHOOL EXTENSION.

Statistics for the school year ending .....

1. State in the appropriate spaces below the number of public-school buildings which were open after 6 p. m. during the school year each specified number of times:

Times open.	29 or less.	30–44	45–74	75–104	105–134	135–164	165–194	195 or more.
Schools....	.....	.....	.....	.....	.....	.....	.....	.....

2. How many high and elementary school edifices were in use for regular school purposes at the beginning of the school year? .....

3. State the total number of group occasions, distributed among the following lines of activity, which were held after 6 p. m. in school buildings during the year. (By "group" is meant a class, an audience, a club meeting, a party, or any other collection of individuals who are participating in, or engaged by, the same series of events. A "group occasion" is one meeting of one group.)

Line of activity.	Code letter.	Number of group occasions.
Regular night school	NS	
Lectures	L	
Entertainments (concerts, etc.)	E	
Society meetings (adults)	SM	
Civic occasions, mass meetings, public discussions	CM	
Athletics, gymnastics, bathing, active games, or folk dancing	A	
Clubs (social, athletic, etc.) or groups (musical, handicraft, etc.)	C	
Rooms open for quiet games, reading, or study	R	
Dancing (social)	D	
Social occasions (parties, banquets, etc.)	S	
Total		

4. How many buildings were used after 6 p. m. exclusively for public evening schools? .....

5. How many evenings in the public evening-school term? .....

6. In the conduct of the extension activities summarized above, other than those of the regular evening school, how many evenings of service were rendered: By paid workers ..... By volunteers (workers employed by voluntary associations or compensated out of private funds should be included among paid workers) ..... Total ..... (These amounts are found by summing the evenings of service rendered by each of the persons who conducted extension activities.)

7. How many schools were utilized for extension activities after the dismissal of the day school and before 6 p. m.? .....

8. State the number of these afternoon group occasions by activities:

Line of activity.	L	E	SM	CM	A	C	R	D	S	Total.
Group occasions										

9. State for the scholastic year the total expenditures upon the extension activities, other than evening schools, as summarized in the answers to questions 3 and 8, distributing them as follows:

Expenditures upon school extension activities (other than evening schools).

	After 6 p. m.	Before 6 p. m.
Salaries		
Equipment		
Supplies		
Janitors		
Total		

10. Of the total amounts expended upon extension activities, indicated above, state how much was derived from public funds ....., and how much from private funds ..... (Under private funds should be included the amounts paid for salaries by voluntary organizations as well as direct contributions of money.)

11. State the total amount of money received during the year from the rental of school buildings for after-school uses .....

B. DIRECTIONS FOR THE USE OF THE DAILY UNIFORM SCHOOL EXTENSION RECORD.

To adapt the blank for afternoon occasions change, by means of rubber stamp or otherwise, "Activities *after* 6 p. m." to "Activities *before* 6 p. m." One blank should cover only one evening or one afternoon, never both. If two or more sets of workers or departments are working simultaneously but independently in the same building, furnish each with blanks, and the data they report can be combined in the principal's office or at the central office. By using carbon sheets, duplicates, or even triplicates, can be made simultaneously. Whether the reports are to be sent in to the central office as fast as filled out or preserved and sent in monthly, they should be made up on the evening of or the morning after the occasion which they record.

1. *Workers.*—Set down the names of the workers in such a way that the records of the groups they handle can be entered on the same respective lines. Spread out the names and use brackets when necessary to make the reference clear. Write "V" after the names of all unpaid workers. Absences, tardinesses, time off, and other information needed for pay-roll purposes can, if it is desired, be entered either in these spaces or in column 5. Workers whose names are not important, or are not obtainable, may be indicated by the name of their job, as "ticket taker," "lantern operator," "janitor," or "chaperones (2) V," the essential requirement being that some entry be made for every person present who participated in conducting the occasion. The total at the bottom of the column will then show the number of units of effort (one evening's work of one person) expended on that date.

2. *Groups.*—Study the definition of groups given on the blank. Every word is significant. As stated, the persons in one room ordinarily constitute one group. A lecture audience is one group. A gymnasium class under a single director, though divided into squads, is one group. All the dancers moving to the same music make one group. However, if two different classes of activities engage distinct sets of people simultaneously in the same room, it contains two groups. Or if three clubs are conducted independently of each other in different parts of the same room, they make three groups. The total at the bottom of this column should represent the number of group occasions for that date.

3. *Activities.*—Opposite each of the entries in column 2 write the letters which, according to the code, indicate the classes of activities that occupied the respective groups the *greater* part of the evening. Credit each group with only its main activity for the evening. If a parent-teachers' association holds a 20-minute business meeting and then has a 45-minute lecture, the occasion should be labeled L and not SM. If a boys' club meeting closes with a brief dance or bit of basket ball, it comes, nevertheless, under the head of C. If the same group devotes the major part of the evening to an entertainment or dance, the occasion should then be marked E or D, according to the event.

4. *Attendance.*—Report the attendance of the various groups on the same lines with the respective workers. If desired, the total for each group can be divided according to male and female, minor and adult, or any other subdivision, and the entries made in column 5 under suitable headings. Each group should be counted at the period of its maximum attendance, but the counts throughout the building should be timed, so as to avoid the possibility of any person being counted more than once. The figures at the bottom of this column should represent as accurately as possible the total number of different individuals present on that occasion. Requiring each worker, or set of workers, to report at the end of the evening the activity and attendance of their respective groups upon specially ruled slips of paper, made up into little pads, is an excellent way of handling this matter.

5. *Miscellaneous.*—In this column may be entered the specific names of activities, subdivisions of attendance, salaries of workers, names of cooperating organizations, or any other kinds of data which may be specially desired.

6. *Remarks.*—This space is suitable for supplementary information which relates to the whole occasion rather than to the affairs of a particular group. The account of some unusual incident, records of admission fees, donations or purchases, a statement of needs—notes of any character can be made here. Generally, the records of expenditures will be kept at the central office, but in cases where financial transactions occur at the school they can be noted here, taking the form of a footnote when it is desired to relate them to a particular line of activity.

The position or title of the signer of the report can be stamped or written below the the space for the signature.

C. DIRECTIONS FOR THE USE OF THE MONTHLY UNIFORM SCHOOL EXTENSION RECORD.

General.—To adapt the blank to afternoon occasions change, by means of a rubber stamp or otherwise, "Activities *after* 6 p. m." to "Activities *before* 6 p. m." The same blank should never be used for records of both periods.

If two or more sets of workers, or departments, are working simultaneously but independently in the same building, furnish each with blanks and then combine their data for the final report.

The square in the upper right-hand corner should be filled in at the end of the month. The position or title of the maker of the report can be stamped or written in the space just under the signature.

Groups.—By "group" is meant a collection of individuals who are participating in, or engaged by, the same series of events. Ordinarily the persons in one room constitute one group. A lecture audience is one group. A gymnasium class under a single director, though divided into squads, is one group. All the dancers moving to the same music make one group.

If two different classes of activities engage distinct sets of people simultaneously in the same room it contains two groups. Or if three clubs are conducted independently of each other in different parts of the same room they make three groups. The entries under a given date should represent *all* of the groups which were present on that occasion.

Lines of activity.—The classification of a group is determined by the activity which occupied it the greater part of the evening. A group should never be credited with more than one activity under the same date. If a parent-teacher association holds a 20-minute business meeting and then has a 45-minute lecture, it should be entered on line 2. If a boys' club meeting closes with a brief dance, it goes, nevertheless, on line 7. If, however, the same group devotes the major part of the evening to an entertainment or dance, then it should be entered on line 3 or line 9, according to the event.

Workers.—In the count of the workers all persons (except night-school teachers) who assisted in the management, direction, or conduct of the activities, or the operation of the school plant and its facilities, should be included. Lantern operators, ticket takers, janitors, engineers, and persons acting in allied capacities are "workers." In the case of a public meeting the presiding officer, secretary, and any other persons who were active, at the time, in the *management* of the occasion would be counted under this head. The performers in a concert or entertainment would not, however, be classed as workers, their status being the same as that of the players in a basketball game that was attended by spectators.

All workers who receive no financial compensation for their school-extension services are volunteers. An assistant who is paid by a voluntary association or a philanthropist and not by the school authorities is still a paid worker. The sum of the month's entries under the head of "workers" should equal the total number of units of effort (one evening's work of one person) expended upon the month's school-extension work (other than regular evening school) at the given school.

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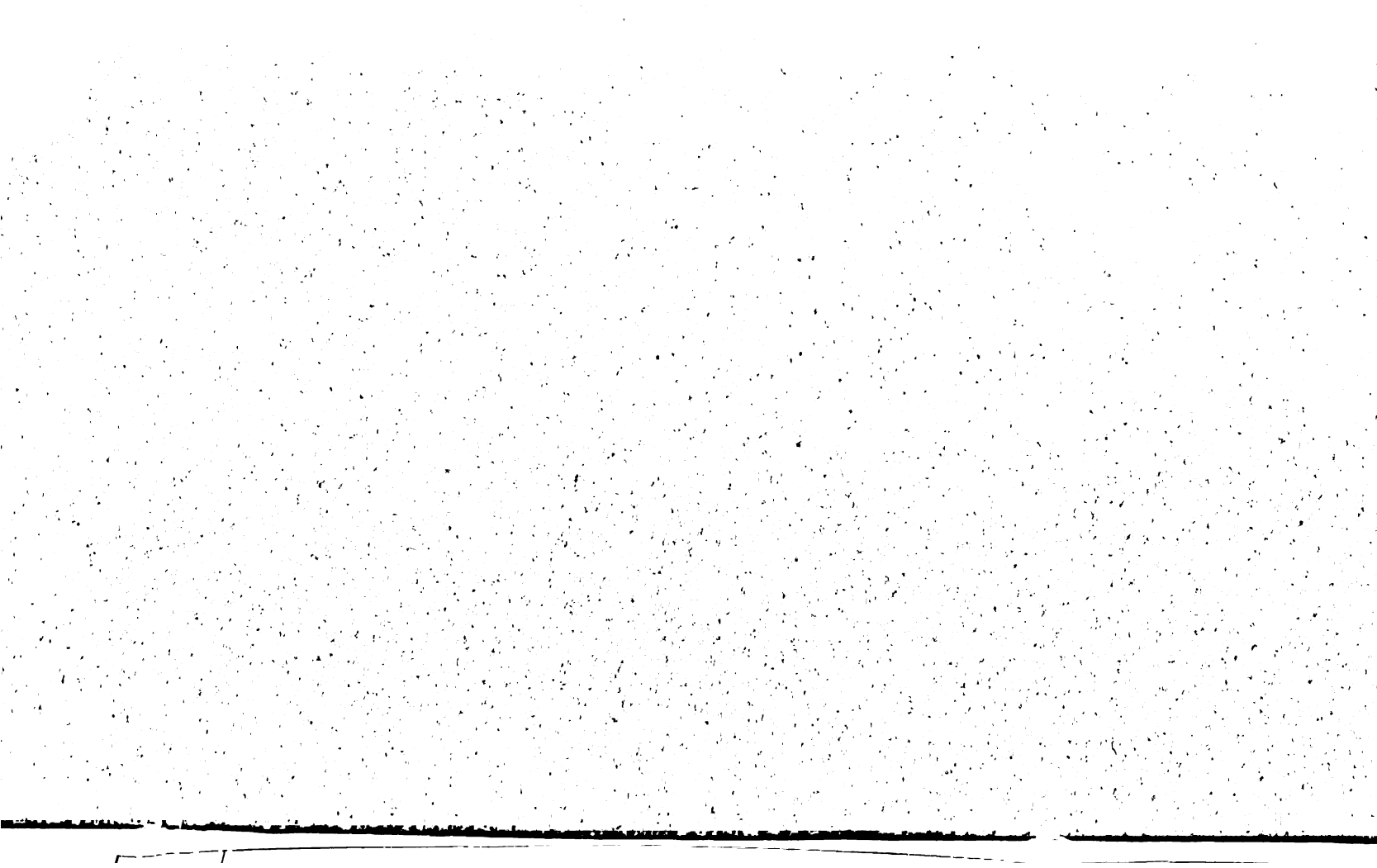
DEPARTMENT OF THE INTERIOR
BUREAU OF EDUCATION

BULLETIN, 1915, NO. 42

ADVANCEMENT OF THE TEACHER WITH THE CLASS

By JAMES MAHONEY
SPECIAL COLLABORATOR, BUREAU OF EDUCATION
HEAD OF ENGLISH DEPARTMENT
SOUTH BOSTON HIGH SCHOOL

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916



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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, September 11, 1915.

SIR: Shall teachers in city graded schools be advanced from grade to grade with their pupils through a series of two, three, four, or more years, so that they may come to know the children they teach and be able to build the work of the latter years on that of the earlier years, or shall teachers be required to remain year after year in the same grade while the children, promoted from grade to grade, are taught by a different teacher each year? This I believe to be one of the most important questions of city school administration. In a large majority of the cities of this country the practice indicated in the second part of the question obtains, but it is not now, I believe, so nearly universal as it once was. I have summed up briefly what I believe to be some of the valid objections to this plan in my introduction to the Report of the Commissioner of Education for the year ending June 30, 1913, which I beg leave to quote here:

Teachers and pupils should remain together longer, especially in the first years of school life. In most city schools a teacher in any of the first six or eight grades remains in the same grade from year to year while the stream of children flows by her. Under these conditions the teacher may become painfully familiar with the minute details of the course of study as made out for the particular grade, but she never becomes acquainted with the individual children of any group she teaches. At the beginning of the school year in the fall, or at the beginning of the second half year in midwinter, from 40 to 50 children promoted from the next lower grade come into the teacher's room to take the place of a like number who have been sent on to another teacher in next higher grade. The teacher knows nothing of the children, not even their names. Probably she has never seen any of them before. She knows nothing of their character, nor of their varying abilities in the different subjects of the course, and has only vague ideas of what they have been taught in the grades below and of what they are expected to learn in the grades above, for which her work is supposed to prepare them. Knowing nothing of the parentage of the children, she can not know what powers, capacities, tendencies, heredities, are to be expected and to be developed or restrained in any individual child. Knowing nothing of their past experiences in the home, in the field, in the shop, on the playground, and in association with kindred and friends, she does not know how to use the results of these vital experiences as the raw material of the lessons to be learned in school. Knowing nothing of their present home life, their occupations and interests, and their relations to their parents, she is unable to bring about that close cooperation between school and home and the unity of school and home interests without which the work of the school can not be made to take hold as it should on the lives of the children. Having very little definite knowledge

of the details of the work which the children have done in the lower grades, she is unable to use the knowledge gained in these grades as the basis of the new lessons, to interpret the new in terms of the old, and to dovetail the one into the other in such a way as to make the work of the year an intelligent development and continuation of that of previous years. Having never conducted a class through any of the grades higher than the one in which she teaches, she has little conception of the relation of the work of this grade to the higher grades, and is therefore unable to select out of the mass of facts and principles with which she deals those on which emphasis should be placed as a preparation for future work. With no knowledge of the inner life of the children, of their ideals, hopes, purposes, and dreams of the future, she is unable to make the lessons of the school take hold on these, modifying them and being enriched by them, as must be the case before the school, its lessons, and its discipline can be made to project themselves into the future and take hold on life as they should, and as they must, before they can become fruitful in life and character and deeds. In all city schools, teachers of the first four or five grades should be promoted from year to year with their classes.

To this plan two objections are frequently raised: (1) That the teacher may be inefficient, and that no group of children should be condemned to the care and instruction of an inefficient teacher through a series of years; (2) that the full influence of the personality of any one teacher has been exhausted by the end of a year, and children should therefore come in contact with a new personality each year. The answer to both objections is easy and evident. The inefficient teacher should be eliminated. The man or woman who is unable to teach a group of children through more than one year should not be permitted to waste their money, time, and opportunity through a single year. A personality which a child between the ages of 6 and 12 may exhaust in a year must be very shallow. What the child of this age needs is not an ever-changing personality, but a guide along the pathway of knowledge to the high road of life.

For the purpose of calling the attention of teachers and school officers to the subject, and that they may have in brief compass at least a partial summary of the practice of the schools of this and other countries, and of the opinions of some of those who have tried the two plans, Mr. James Mahoney, head of the English department in the South Boston High School, Boston, Mass., and a special collaborator in this bureau, has, at my request, prepared the manuscript transmitted herewith for publication as a bulletin of the Bureau of Education. It is my purpose to have other studies of this subject made and to do whatever I can to have that which I consider the better plan given sufficient trial to prove its merits.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

ADVANCEMENT OF THE TEACHER WITH THE CLASS:

POSSIBILITIES AND LIMITATIONS OF THE PLAN.

THE QUESTIONS INVOLVED.

Who has ever known a child, either bright or backward, to be indifferent to the question: Who is to be the teacher next term? Who has ever known a parent, however careless, to be quite unconcerned about the same question? Why, then, are not school administrators interested in that question? Why do they not give practical attention to it (*a*) by systematic study of the proper assignment of teachers, or (*b*) by thoroughgoing consideration of the problem of continuance of teachers with given sets of pupils?

The answer must be that they are, in general, interested; but that conditions, especially in the larger cities, make proper adjustment of teachers and classes extremely difficult. Furthermore, the scientific study of school problems of any sort is but in its infancy.

It would seem, too, on the face of it, as if not alone the rapid growth of American cities, but also, perhaps, an unfortunate application of the doctrine of efficiency, has led to mechanical, unprogressive, assignment of teachers. The result is that a teacher, once assigned to a grade (or, as often happens, to a half grade), whether originally from the standpoint of efficiency or not, remains commonly fixed in that grade, on the ground that she knows the work better than any other work, and can therefore do it better. In other words, it would appear that the doctrine of efficiency through specialization is counted on to produce best results. One may indeed admit that this is a sound proposition in the abstract, but the question is practical, and one needs to know within what limits the doctrine is applicable; and what, if any, are the correlative principles which should receive conjoint application. It is certainly an open question whether the doctrine of efficiency through specialization has not received too narrow an interpretation, on the false assumption of analogy between retention of teachers in grade in the public schools and the subdivision of labor in factories, with its restriction of process and uniform repetition of limited movement. But whether the analogy between school and factory be close or remote, it is

essential to determine how narrow or how wide the specialization ought to be; and neither custom nor convenience should be allowed to dictate the final answer.

How long ought a teacher to remain in charge of any given set of pupils? Another question must precede this in order of time: Why should a teacher be assigned to a particular grade? To this question several answers are possible:

(*a*) She has had special training for that grade.
(*b*) She is by nature adapted to that grade.
(*c*) She has had experience in that grade.
(*d*) She has already taught that set of pupils, and obtained good results.
(*e*) She was available at the time of the assignment.

Granting the validity of any, of several, or of all of the above reasons for the assignment; and granting, too, a fair measure of success after a proper period of probation, does it necessarily follow that a wider range of teaching would not conduce to greater benefit, both for teacher and student? While experienced principals and teachers affirm that the question which is apt to be most urgent is not, what qualifications should the teacher of a certain grade possess; but, what teachers are available; yet, in general, with a corps of teachers already formed, it is businesslike to inquire how that corps can be employed so as to produce best results; to what grades or classes the individual teachers should be assigned; whether there should be a system, or a policy, regarding retention or advancement, or whether every case should be settled according to the presumed needs of the occasion as determined at the time by the person in charge.

REASONING FROM A THEORETICAL STANDPOINT.

On general grounds, in accordance with the principles of pedagogy and psychology, the argument is strong for the advancement of the teacher with her pupils for a considerable period of time. The personality of the teacher is the vitalizing force in education, and it is productive in individuals (*a*) according to native endowment, (*b*) according to personal training and attainment in knowledge, sympathy, and skill. When a wholesome, productive personality has once begun to stimulate into new life and power the growing, conscious being of the child, its activity should be continued so long as it shows a normal quickening influence. This is essential for conscious mental unity in the child, and for normal, uniform development. Mental motherhood is as much a fact as physical motherhood, as every teacher knows, and should be needlessly disturbed as little in the one case as in the other, at least until, under the stimulating influence, the inchoate personality of the child begins to unfold its independent

powers. When this mental motherhood, with its resulting intimate acquaintance, is once productively established, it should not only occasion a saving of time, but many other advantages should result, to the city, State, and Nation through the teacher's more vital contact with the child and his home, and her consequent greater ability to help him adjust himself to life. It should follow, also, that inopportune change of personal influence, particularly in the earlier stages of self-realization, would lead to faults and distortions, mental, moral, and spiritual.

Such is the pedagogic theory, but is there any considerable body of actual school experience which tends to substantiate this theory? Have any practical limits to its application been determined?

It was with a view to getting some definite answers to these questions that the Bureau of Education sent, in April, 1913, to all superintendents of the United States in cities and towns of 4,000 population and over, the following questionnaire:

1. Are teachers promoted from grade to grade with children, or do they remain in the same grade from year to year?
2. If the teacher is promoted with the children, does she follow them to the end of the grammer school, or does she stop at a lower grade? If at a lower grade, what grade?
3. State briefly your reasons for the plan you use.
4. If you have had experience with both methods (i. e., of promoting teachers with their pupils, and also of retaining teachers in grade), what is your opinion of their relative merits?

Replies were received from 813 superintendents of schools, in cities large and small, in 46 States, giving facts with regard to this plan as tabulated below.

Summary of replies to questionnaire as to advancement of teacher with class.

States.	Number of superintendents reporting.	Actual practice in regard to advancement of teachers with classes.					Personal attitude of superintendents toward plan.						
		Are your teachers promoted from grade to grade with pupils?				About to try plan.	Approve plan.	Strongly approve plan.	Condemn plan after trial.	Condemn plan without trial.	Think both plans should be used.	Investigating the plan.	No data.
		All	Many.	Few.	None.								
Alabama	6			1	5				1	4	1		
Arizona	3				3				2				1
Arkansas	5				4	1			2	2		1	
California	23	1		8	14		3	1	4	6	1	2	6
Colorado	5			1	4		1		1		1		2
Connecticut	25	1		1	23		2		1	12	2	1	7
Florida	4	1		1	2			1		1	1		1
Georgia	14		1	1	10	2	2		5	3	2		2
Idaho	4			1	3					2		1	1
Illinois	56	1	1	11	42	1	6		5	31	3	1	10
Indiana	38	3	2	2	31		7		4	18	2	1	6
Iowa	19		3	3	13		3		3	8	3	1	1
Kansas	15		2		12	1	1	1	5	6	2		
Kentucky	15		1	2	12		1		3	3	3	1	4
Louisiana	5	1			4				1		1	2	1

Summary of replies to questionnaire as to advancement of teacher with class.—Continued.

States.	Number of superintendents reporting.	Actual practice in regard to advancement of teachers with classes.					Personal attitude of superintendents toward plan.						
		Are your teachers promoted from grade to grade with pupils?				About to try plan.	Approve plan.	Strongly approve plan.	Condemn plan after trial.	Condemn plan without trial.	Think both plans should be used.	Investigating the plan.	No data.
		All.	Many.	Few.	None.								
Maine	13				13				2	5	1	1	4
Maryland	3				3					3			
Massachusetts	70			2	68		2		15	32	2	1	17
Michigan	41		1	7	32	1	6		1	14	7	1	12
Minnesota	16		1	6	9		2		4	4	4		2
Mississippi	3				3				1			1	1
Missouri	19			3	16		3	1	2	6	2	4	1
Montana	7		1	1	4	1	3		1	2	1		
Nebraska	8		1	2	5		2			3	1	1	1
Nevada	1				1					1			
New Hampshire	8				8					4		1	3
New Jersey	32	3		7	22		6			18	3	1	4
New York	57	2	4	5	46		8		13	26	3	2	5
North Carolina	9		3	5	1		6			1	2		
North Dakota	4			1	3					1	1		2
Ohio	57	1	2	7	47		2	1	7	34	1	2	10
Oklahoma	9	1	1	2	5		1	1		3	3		1
Oregon	3			1	2				1	1		1	
Pennsylvania	99	3	1	4	91		3	1	24	43	3	4	21
Rhode Island	10			1	9				1	7			2
South Carolina	5			1	4				1	2			2
South Dakota	6				6					6			
Tennessee	6		1	1	4		3		1	1	1		
Texas	22	3		3	17		1	1	4	9	2		6
Utah	4	1		1	2		1		2			1	
Vermont	7			1	5	1	2		1	2		1	1
Virginia	12	1	1	2	8		2		3	4		1	2
Washington	11		1	2	8		4		3	2			2
West Virginia	7				7				2	3			2
Wisconsin	23		1	3	17	2	5		3	8	3	2	2
Wyoming	3				3					2		1	
Total	813	23	29	100	651	10	88	8	129	344	62	37	145

GRADES AND CYCLES OF ADVANCEMENT NOTED IN REPLIES TO QUESTIONNAIRE.

Many of the superintendents do not answer with regard to the grades or cycles through which their teachers move, and the answers of many of those who do reply are very incomplete.

Those who have not yet established an approximate system of advancement or series of grades through which certain groups of teachers pass as through a cycle, and yet who have made some experiments along this line, give the following answers, some of which are quite indefinite: Four report that teachers retain their pupils for one year, with semiannual promotions; one reports the fourth year, with semiannual promotions; one, the fifth year, with semiannual promotions; three, the primary grades do not advance; one, "the lower grades"; six, two grades; two, three grades; two, two or three grades; one, grades 1 and 2; three, grades 1 to 3; four, grades 1 to 4; one, grades 1 to 5; one, grades 2 to 5; one, grades 1 to 8;

one, grades 5 to 8; one, grades 6 to 8; three, grades 7 and 8; two, one to two years; one, one and one-half years; four, two years; one, one to three years.

The reports of those who have established approximate cycles of advancement are also incomplete, and often indefinite. Three report one year, with semiannual promotions; two report two grades; two, grades 1 and 2; two, two years; one, 1 and 2 and 1 to 3 years; one, 1 to 3 years; one, grades 4 to 8; one, grades 1 to 3 and 4 to 7; one, two or three grades each up to eighth; two, grades 1 to 3, 4 to 6, 7 and 8; one, grades 1 to 3, 4 and 5, 6 to 8; one, shift within three groups; one, grades 1 and 2, 3 and 4, 5 and 6, 7 and 8; one, grades 5a, 5b, 6a; one, grades 5b, 6a, 6b; one, grades 6a, 6b, 7a; one, "cycles, primary to grammar"; one, "the 3–3–3–3 plan."

OPINIONS OF SUPERINTENDENTS AS TO MERITS OF PLAN.

Characteristic Statements.

(*a*) Of superintendents who have tried only the static plan, and have not yet considered any other: "Simply old precedent habits"; "adjustment to environment"; "matter of custom"; "tradition"; "sicut erat in principio"; "never tried another plan"; "I have really no good reason."

(*b*) Of those who have apparently given some consideration to the matter, but have not tried the promotion plan, either because they believe that local conditions are unfavorable, or that sound educational reasoning is against the plan: "Pupils change residence too often"; "not feasible"; "would not work well in a small city"; "normal system prepares teachers to teach specific grade."

(*c*) Of those who favor the plan but do not adopt it, believing that their teachers are not fitted for the promotion plan: "Teachers become absorbed in one year"; "teachers not fitted"; "few teachers can adapt themselves"; "too many new teachers each year"; "teachers are seldom ready and willing to change"; "teachers object to changing grade, as it means added labor"; "teachers would resign."

(*d*) Of those who believe that salary list prevents trial of plan: "Salary list"; "our salary schedule makes it necessary for teachers to remain"; "our salaries being same for all grades removes incentive."

(*e*) Of those who condemn promotion plan on theoretical grounds of efficiency (apparently without having made trial of plan): "Teacher becomes a specialist in one grade"; "grade specialists are desirable"; "better for pupils to meet different personalities"; "certain personalities fit certain stages of child development"; "takes two or three years for teacher to get acquainted with work of one grade."

(*f*) Of those who directly condemn plan of promotion without trial of it: "Fail to see advantage"; "have not had promotion plan, but they do better work to remain in grade"; "impossible to promote—what would you do with teachers of highest grade"? "promotion of teachers after trial will prove colossal failure."

(*g*) Of those who gave promotion plan some trial, but abandoned it: "Tried plan in a few cases, did not get results, returned to old plan." "A real good primary teacher often fails in fifth or sixth grade."

(*h*) Of those who are considering the new plan, or experimenting with it: "I think promotion plan might be made to work"; "we are trying to work away from old plan"; "prefer to let teachers stay through one year at least."

(*i*) Of those who favor both plans: "If the teacher is strong and has a good grasp on class promote her, otherwise not"; "when we can get same pupils back, better to promote"; "when teachers are qualified, promotion plan is better"; "if teachers are strong I prefer to promote them"; "within certain limits, favor promotion"; "depends on adaptability of teacher"; "works well with some teachers, others poorly."

(*j*) Of those who have given the promotion plan a trial and have the conviction that it is the better plan: "Latter plan is better"; "prefer to let teachers stay through one year at least, longer period would be better"; "promotion plan worked well, and whenever possible, pass teachers on with pupils"; "the plan of promoting teachers through at least two or three grades is a good one—it shows up the poor teachers to good advantage"; "the teacher becomes attached to her pupils—knows them better"; "I consider two years very much better than one year, and I would not consider a six months' term for a minute"; "heartily indorse promotion; better coordination, less time lost"; "changing teachers wastes time"; "teachers can not say 'children not prepared'"; "it is better for pupils not to change teachers often"; "each teacher ought to stay with pupil two years, in order that by acquaintance she may help pupil"; "keeps teachers growing"; "keeps from falling into rut"; "is an inspiration to a teacher to say to her 'take these seventh grade pupils and fit them for high school"; "it probably brings stronger teaching of the branches"; "arouses teacher's methods and interests and enlarges her views"; "teacher must be familiar with work above her and below"; "the plan tends to hold children in school through a desire to go back to an old friend—the teacher's responsibility is multiplied by three."

It is noteworthy that those who favor the plan of promoting teachers with pupils speak with the enthusiasm and varied expression of those engaged in any work of fruitful experiment; while those opposed give stereotyped answers.

In a general way, the replies point to the need of more and wider training of teachers, with the consequent need of more normal schools and the need of proper tenure and adequate salaries, in order to secure the stability of the teaching force. These things are emphatically stated by many superintendents to be the essential prerequisites for success with the plan of advancing teachers with their pupils. Yet, even under present conditions, 152 superintendents, or about 19 per cent of all, report that they have had favorable experience with the plan; and 90 per cent of these distinctly give approval. About 100 more are investigating the subject, and about two-thirds of these are inclined to the opinion that both plans can be maintained in the same school system.

Fully half of the superintendents who replied to the questionnaire condemn the advancement system, though a very large majority of these admit they have had no experience with it. Yet a plan that has hitherto received but little use and less investigation, that commands the warm endorsement of such a large percentage of superintendents who have actually tried it, certainly deserves further study and experiment.

It is here worth while to state again some of the questions that naturally arise from this problem in administration:

Is the present method of retaining teachers in grade (or, at times, in half grades) conducive to an economic use of the teaching force?

Does it tend to produce growth and ambition, or stagnation, in teachers?

Does it afford the best opportunity for locating the strong and weak links in the teaching chain?

Does it tend to produce a maximum of training, development, and guidance of the powers of pupils?

Does it produce the greatest interest of teacher in the pupil?

Does it afford the best means of correlating the school with the home and the community, and to realize our national ideals?

Would the plan of advancement of the teacher with class be more beneficial both for teacher and pupil? If so, in what ways? To what degree? Should the advancement include all the grades—lower, grammar, and high; or should it be limited to a few grades? Must the degree of advancement be entirely indeterminate, or is it possible to establish approximate cycles? Are there any data that would enable an administrator to reasonably forecast the appropriate grade movement, or cycle, of given types of teachers, e. g., teachers with specified training and experience? Is this subject matter by nature chaotic, or are there laws which may be determined? Who has already tried the experiment? Where? In a large or a small community? In a farming, mining, factory, or mercantile community? Is it wise to attempt the plan if the teachers are not normal-school graduates? Are there any kinds of pupils with whom the plan ought not to be tried, e. g., kindergarten, primary, or high school? Is this method consistent with departmental work?

Inasmuch as many doubts were expressed in the answers of the superintendents, and the affirmative evidence was in many ways indefinite, it seemed best to send another questionnaire to the superintendents who expressed most interest in the problems of grading and promotion, in order to secure some positive information upon which to base answers to even a few of these questions. Accordingly, a questionnaire was sent, November 7, 1914, to the 152 superintendents who had in 1913 manifested an interest in the plan of advancement. The questions and answers are tabulated below, with a summary following the tables. The table is divided into three parts; to obtain complete answers for each city it is therefore necessary to refer to each of the parts in turn. Information for South Bend, for example, is found on pages 14, 18, and 21.

TABLE 1.—*Advancement of teacher with the class; superintendents' replies.*—PART I.

State.	Town or city.	Superintendent or officer reporting.	Do you still use the plan?	With what proportion of your teachers?	Do you keep some teachers stationary because not competent for promotion? What percentage?	Through what grades do you commonly promote the teachers?	If in regular cycles, what cycles?	Does better acquaintance of teacher with pupils save time?
Ark.	Paragould	L. B. Ray	Yes	One-fourth	One-fourth	2-4		Yes.
Cal.	Oakland	A. C. Barker	Yes	All.		2 years to a class	1-2; 3-4; 5-6; 7-8.	Yes.
	San Bernardino	F. W. Conrad		1 teacher		5, 6, 7		No.
	San Francisco	T. L. Heaton[1]	Occasionally; not a custom.			Below the sixth	Also seventh and eighth grades.	
	Santa Ana	J. A. Cronston	No experience, with one or two exceptions.					
Colo.	Leadville	G. M. Hammers	Not been the policy here.					
	Trinidad	J. R. Morgan	Yes	One-fifth		3 grades	1-3; 4-6; 7-8	Yes.
Conn.	Naugatuck	F. W. Eaton	Yes			3, 4, 5		
Fla.	Tampa	Marshall Moore[2]	Yes	Nearly all	Seven one-hundred-and-forties.		1-3; 4-6; 7-8	Yes.
Ga.	Albany	J. S. Allen	No, but interested.					
	Atlanta	W. M. Slaton	No[3]					
Ill.	Berwyn	E. A. Wilson	Yes	One-tenth	Nine-tenths	Primary		No.
	Cairo	F. C. Clendenen	No[4]					
	La Salle	J. B. McManus	Yes				1-2; 6-7-8	Yes.
	Quincy	E. G. Bauman	Yes	Few cases		Primary and grammar.		Yes.
Ind.	Clinton	J. W. Wilkinson	Yes	60 per cent	25 per cent	All	1, 2, 3, 4; 5-6; 7-8.	Yes.
	Columbus	T. F. Fitzgibbon	Yes	10 per cent	80-90 per cent[5]	1-5	Not often in cycles.	Yes.[6]
	Evansville	J. H. Tomlin	Yes	20 per cent	Yes	No data	4a, 5b, 5a	No.[7]
	Gary	W. A. Wirt	Yes	All primary	No	1-2[8]	1-2; 1-2	Yes.
	Madison	D. Du Shane	Yes	One-fifth of primary; all intermediate.		1-2-3b	2½ years	Yes.
	South Bend	L. J. Montgomery	Yes	10 per cent		2-3-4	Not regular	Yes.
	Vincennes	R. I. Hamilton	Installed, not definitely.	Small		No rule	Would like 1-3, 4-6, 7-9, 10-12.	
Iowa.	Boone	E. C. Meredith	Yes	1 or 2 a year		(9)		Yes.[10]
	Cedar Falls	B. Francis[11]	Not generally	Strong teachers	No data	6, 7, 8	No cycle	Can not say.

Kans.	Chanute	J. F. Hughes	[11]					
	Fort Scott	H. D. Ramsey	Yes	75 per cent (?)	0	1-2; 3-4; 5-6; 7-8	2 years	Yes.
Ky.	Lexington	M. A. Cassidy	Yes	20 per cent	Those adapted to certain grades.			Yes.
	Dayton	L. N. Taylor	To some extent	10 per cent	50 per cent	2-5	Not in regular rotation.	Yes; a little.
La.	Lafayette	L. J. Alleman	Not yet begun [12]					
Mass.	Taunton	H. W. Harrub	In some rooms [13]					
	Waltham	W. D. Parkinson	"Instances"		No formula	Individual adaptation.		Yes, I believe it to have that tendency.
Mich.	Kalamazoo	S. O. Hartwell [2]	Occasionally		No	1-3; 4-6	Above grade 7 work is departmental.	Not enough data.
	Marquette	A. R. Watson	One or two cases [14]					
	St. Joseph	E. P. Clarke	Yes	10 per cent	90 per cent	2-8		Yes.
Minn.	Minneapolis	F. E. Spaulding	Yes	Half	Not best in all cases.	Below the sixth	First and second; second and third; third and fourth.	No exact data, but I think so.
	New Ulm	H. C. Hess	To some extent	33⅓ per cent	No	All		Yes, sometimes.
	Winona	J. V. Voorhees	No					
Mo.	Webster	W. D. Grove	Yes	About one-third	Yes, one-half	First to seventh	1-2; 3-4; 5-7	Yes.
Mont.	Bozeman	R. J. Cunningham [2]	To some extent	25 per cent	No	2, 3, 4, 6, 7	Not in cycles	Yes.
Nebr.	Kearney	R. E. Cochran	Yes		Three-fourths	No rule	Primary and intermediate.	Yes, sometimes.
N. H.	Concord	L. J. Rundlett	Intend to try it [15]					
N. J.	Bayonne	J. W. Carr	Yes, to some extent	Varies	No data	All	Primary, one; Grammar, two.	Yes.

[1] Deputy superintendent.
[2] See teachers' list.
[3] No; it would be unwise with us. "In my judgment, granted the condition that a teacher is qualified to instruct a class thoroughly in any grade in the school system, the promotion of teacher would produce much better results."
[4] "No; we gave it up because we believe every grade needs a strong teacher."
[5] Better fitted for one grade.
[6] Yes; for those who can adapt themselves.
[7] No; not to any great amount.
[8] Department work in upper grades.
[9] Intermediate and grammar grades.
[10] Yes; possibly so.
[11] "We have had no experience which will justify my answering them (the questions); neither have we adopted the plan as a system. We believe in it, and possibly will do so at a later time."
[12] Not yet begun. It will extend through fifth grade in Principal R. L. Jordan's school.
[13] We regard the principle as a valuable one, and intend to use it where it can be applied to advantage.
[14] Not enough data to warrant report.
[15] See remarks.

TABLE 1.—*Advancement of teacher with the class; superintendents' replies.*—PART I—Continued.

State.	Town or city.	Superintendent or officer reporting.	Do you still use the plan?	With what proportion of your teachers?	Do you keep some teachers stationary because not competent for promotion? What percentage?	Through what grades do you commonly promote the teachers?	If in regular cycles, what cycles?	Does better acquaintance of teacher with pupils save time?
N.J.	Bloomfield	Geo. Morris [1]	Yes	10 to 15 per cent.	80 to 90 per cent do better in grade assigned.	1–8	Not regular cycles.	Yes, in some cases it helps a great deal.
	Hackensack	W. E. Stark	Not in an extensive way.	([2])				
	Montclair	D. C. Bliss [1]	At times	Special cases	Not a question of competency.	Intermediate grades usually.		Yes.
N. Y.	Canandaigua	L. N. Steele	No. [3]					
	Jamestown	R. R. Rogers	No. [4]					
	New York City	W. H. Maxwell	Yes [5]					
	N. Tarrytown	C. A. Benedict	Yes [6]					
	Syracuse	P. M. Hughes	Yes	All	0	All elementary	1 year or 2	Yes, in more effective work.
N. C.	Newbern	H. B. Craven	At times	5 per cent	15 per cent	Sixth	No regular plan.	Yes.
	Winston-Salem	R. H. Latham	Yes	Few	Few	1–7	1–2–3; 4–5; 6–7.	Yes.
N. Dak.	Bismarck	C. C. Root	Yes, but not generally.	3 teachers in 4 years.		1–2–3; 4–5–6		Yes, I think so.
Ohio	Alliance	H. L. Eby [7]	Yes		Not more than 5 per cent.		1–2; 1–3; 3–5 or 4–6; 6–8; 7–8.	Yes.
	do	B. F. Stanton	Yes, where it seems wise.		Where she can do better.	2–6		
	Coshocton	C. E. Bryant	Yes, partly	Most efficient	50 per cent; yes	1–2–3		Yes.
	Hamilton	D. Joyce	No [8]					
	New Philadelphia	C. F. Limbach	Yes [9]					
Okla.	Guthrie	F. D. Brooks	Yes	20 per cent	No	2–3–4		Yes.
	McAlester	C. N. Peak [1]	Yes	Possibly 10 per cent.	A few; 5 per cent.	Intermediate	2 or 3 years	Yes.
	Tulsa	E. E. Oberholtzer	Yes [10]					
Oreg.	Astoria	J. G. Imel	Yes	2 teachers	No	Primary	1, 2, 3	Can not say.
Pa.	Carrick	W. H. Sprenkle	Yes	One-eighth	12 per cent	3–6		Yes, I think so.
	Duryea	F. J. Regan [1]	Yes	do	No	1–4		Yes.
	Harrisburg	F. E. Downes	Yes	90 per cent	10 per cent, exclusive first year.		2–3, 4–5, 6–7, and 8–9.	
	Phoenixville	I. Doughton	No, but expect to try it.					
	St. Marys	J. J. Lynch	No [11]					

S. C.	Sumter	S. H. Edmunds	Yes[12]	1				
Tenn.	Chattanooga	C. H. Winder	No[13]					
Tex.	Beaumont	H. F. Triplett	Yes, except primaries.	80 per cent	10 per cent	Second to eighth		Yes.
	El Paso	R. J. Tighe	No[14]					
Utah	Logan	A. Molyneux	Yes	Intermediate grades.		2, 3, 4, 5	Whenever unity of class permits.	Yes.
Va.	Petersburg	R. R. Jones	Yes	Very small	Yes; 50 per cent	1a–1b; 2a–2b; 3a–3b.	First three grades.	Yes, I think so.
	Portsmouth	H. A. Hunt[1]	Yes, with limitations.	All		Always A–B	Sometimes 2 full years.	
	Richmond	J. A. C. Chandler	Yes	70 per cent	Specially competent ones retained; 1 year's work.	Second to seventh grades.	In the A and B grades.	Yes.
Wash.	Aberdeen	G. B. Miller	Yes	Probably three-fourths.	2 per cent	Lower		Yes, I believe so.
Wis.	Neenah	E. M. Beeman	Yes	Only a few	Large per cent	4–8		Yes.
Wyo.	Laramie	W. M. Sinclair	Yes	20 per cent	20 per cent	2–5	Not regular cycles.	Yes.

[1] See teachers' list.
[2] With semiannual promotions, nearly all.
[3] We have not put this scheme into execution, but expect to try it out partially, next year, beginning with third grade.
[4] Practice so irregular and informal, not possible to fill out questionnaire.
[5] A great many principals use plan. Have urged them, wherever feasible, to advance teachers with pupils from grade to grade, and then return to fixed point. Have no definite statistics.
[6] Have semiannual promotions, and for two years, have let the teachers follow their grades for a year.
[7] Until 1913.
[8] We tried the plan, but gave it up. It saved some time, but at least one-half of pupils changed within three or four years, so we gave up plan.
[9] A few times as a matter of convenience. The plan has distinct advantages.
[10] See teacher's letter.
[11] We have never put the system into practical use.
[12] All one year 15 years ago. Individuals now.
[13] Experience too limited to answer.
[14] I expect to use the plan this year.

State.	Town or city.	How much time is saved?	Can the teacher thus keep in closer touch with the pupils' homes?	Are you, through teachers, better able to estimate vocational aptitudes of pupils?	Does teacher thus get a stronger grasp of work of a given grade?	Does she assign lessons and mark more fairly?	Does her better understanding of pupils give her more patience and greater success in winning affection?	Is the teacher's professional zeal increased?	Does she thus see her own defects better?
Ark.	Paragould	2–6 weeks	Yes[1]	Yes	Yes; certainly	Yes; notice progress.	Yes	Yes; I believe so.	No.
Cal.	Oakland		Yes	Yes	Yes				
	San Bernardino		Yes	Yes		Yes; probably	Yes	Don't know.	Yes; probably.
	San Francisco						Yes		
	Santa Ana								
Colo.	Leadville								
	Trinidad	Varies with teacher and grade.	Yes	Have not investigated.	Yes	Yes	Yes; I think so.	Yes; usually.	Yes.
Conn.	Naugatuck								
Fla.	Tampa	Two thirty-seconds.	Yes[2]	Yes	Yes	Yes	Yes	Yes	Yes.
Ga.	Albany								
	Atlanta								
Ill.	Berwyn		Yes	Yes	Yes	Yes	Yes	Yes	Yes.
	Cairo						Yes		
	La Salle	Varies; one-third of time first month.	Yes	Not yet; think it will.	Yes	Yes	Usually[3]	Yes	Yes.
	Quincy		Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Ind.	Clinton	No definite answer.	Yes	Yes; to some extent.	Yes	Yes	Yes	Yes	Yes.
	Columbus	Often; one-half year in 2 or 3 years.	Yes	Yes; much better.	Yes	Yes	Yes	Yes; usually.	Yes; usually.
	Evansville		Yes	Yes	Yes	Yes	Yes	Yes	Yes.
	Gary		Yes	Yes	Yes	Yes	Yes	Yes	Yes.
	Madison	About one-third of pupils save half a year.	Yes		Yes	Yes	Yes	Yes; undoubtedly.	Yes; I think so.
	South Bend		Yes		Yes	Yes	Yes		
	Vincennes		Yes[4]	Possibly	Yes; think so	Yes; think so	Yes[5]	Yes; gives broader view.	
Iowa.	Boone		(6)						

Kans.	Cedar Falls		Yes	Yes	Yes	Yes	Yes	Yes	Yes.
	Chanute								
	Fort Scott		Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Ky.	Lexington		Yes	Yes	Yes	Perhaps[2]	Yes	Yes; gives broader outlook.	Yes.
	Dayton	Not so much as I had expected.	No[7]	No gain in this matter.	Yes	Yes	Can not say.	It may	It may.
La.	Lafayette								
Mass.	Taunton								
	Waltham	Can not say	Theoretically, yes.	Theoretically, yes.	Yes	Yes, ought to	Other factors enter in.		
Mich.	Kalamazoo		Not enough data		Yes		Depends on teacher.	Yes	Yes.
	Marquette								
	St. Joseph	25 per cent	Yes	Yes, I think so	Yes, certainly	Yes	Yes	Yes	Yes.
Minn.	Minneapolis		Yes		Yes	Yes, I think so	Yes, in most cases.	Yes	Yes, ought to.
	New Ulm		Yes	do	Yes, but not always.	Yes	Yes	Yes	Yes.
	Winona								
Mo.	Webster	About one-fourth, varies with class.	Yes	Yes, very much better in many cases.	Yes, decidedly	Yes	Yes, makes her more sympathetic.	Yes	Yes.
Mont.	Bozeman	5 per cent; varies	Yes	Yes	Yes	Yes	In general, yes.	Yes	Yes, as a rule.
Nebr.	Kearney		Yes	Yes, to some degree	Yes	Yes			
N. H.	Concord								
N. J.	Bayonne	No accurate data	Yes	Yes, I think so	Yes	Yes, I think so	I do not know.		Yss.
	Bloomfield	Probably 10 per cent.	No, do not see that it does.	Yes, I think not	Yes, I think so	No, not perceptible.	Yes, in some cases a tendency that way.	No, not noticeably.	
	Hackensack								
	Montclair	Should think 10 per cent.	No, see no closer touch.	No	Possibly	Yes	Yes	Yes	No, see no connection.
N. Y.	Canandaigua								
	Jamestown								
	New York City								
	N. Tarrytown								
	Syracuse		Yes[6]	No, nothing in this line.	Yes, I think so				
N. C.	Newbern	Perhaps two weeks	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
	Winston-Salem	Can't estimate		Yes	Yes	Yes	Yes	Yes	Yes.
N. Dak.	Bismarck	I can't say	Yes	Yes	Yes	Yes	Yes, think so	Yes	Yes.

[1] Know parents better, etc.
[2] Know parents better.
[3] But not the weak teacher.
[4] I think it would.
[5] Would expect that.
[6] Depends on teacher.
[7] Not in this community.
[8] To some extent, not very much.

TABLE 1.—*Advancement of teacher with the class; superintendents' replies.*—PART II—Continued.

State.	Town or city.	How much time is saved?	Can the teacher thus keep in closer touch with the pupils' homes?	Are you, through teachers, better able to estimate vocational aptitudes of pupils?	Does teacher thus get a stronger grasp of work of a given grade?	Does she assign lessons and mark more fairly?	Does her better understanding of pupils give her more patience and greater success in winning affection?	Is the teacher's professional zeal increased?	Does she thus see her own defects better?
Ohio	Alliance	10 to 15 per cent	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
	do		Hard to say	Yes, probably	Yes, probably	Yes	Depends on teacher.	Yes	Yes, it ought to.
	Coshocton	Probably one-fifth.	Possibly	Yes, we keep pace with pupils.	Yes	Yes	Yes	Yes	Possibly.
	Hamilton								
	New Philadelphia								
Okla	Guthrie		Yes	Yes		Yes			Yes.
	McAlester	Month or 6 weeks	Yes	I think so	Yes	Yes	Yes	Yes	Yes.
Oreg	Astoria		Yes						
Pa	Carrick	Do not know	Yes		Yes	Yes	Yes		Yes.
	Duryea	Possibly one-half grade in 4, or 12½ per cent.		Yes	Yes	Yes			Yes.
	Harrisburg		No	Yes	Yes	Yes	Yes		
Tex	Beaumont		Yes	Yes	Yes	Yes	Yes	Yes	Yes, I think so.
Utah	Logan	Possibly one-fourth	No, not noticeably	Yes, I think so	Yes	Yes	Yes, I think so.	Yes	Yes, it should.
Va	Petersburg	10 per cent	Yes, certainly	Yes, assuredly	Yes	Yes, I think so	do	Yes	Yes, I hope so.
	Portsmouth		Yes		Yes	Yes	Yes, without doubt.	Yes, I think so.	
	Richmond	One-half year	Yes	Yes	Yes	Yes	Depends on individual.		
Wash	Aberdeen	Can not say	Yes	Yes	Yes	Yes	Yes, I believe so.	Yes	Yes.
Wis	Neenah	No data	Yes	Yes, we think so	Yes	Yes	Yes	Yes	Yes.
Wyo	Laramie	10 per cent	Yes	No, not appreciably yet.	Yes	Yes	Yes	Yes	Yes.

TABLE 1.—*Advancement of teacher with the class; superintendents' replies.*—PART III—Continued.

State.	Town or city.	Superintendent or officer reporting.	Does it make it easier to locate blame for poor teaching?	Does it lessen friction between teachers?	How long does it take teacher to adjust herself to plan?	Does a good teacher raise the rate of attendance?	Does it produce greater unity in knowledge of pupils?	Does it produce greater power to apply what they have learned?	Does it produce greater power to apply what they have learned—		Does profounder knowledge of pupils enable teacher to induce better self-control and character?
									To new lessons?	To problems out of school?	
Ark.	Paragould	L. B. Ray	Yes		Few days, if master.	Yes	Yes	Yes	Yes		Yes.
Cal.	Oakland	A. C. Barker									
	San Bernardino	F. W. Conrad	No	We have no friction.	2 years	Yes	Yes		Yes		Yes.
	San Francisco	T. L. Heaton [1]									Yes.
	Santa Ana	J. A. Cronston									
Colo.	Leadville	G. M. Hammers									
	Trinidad	J. R. Morgan			Readily	No; not noticeably.	Yes	Yes	Yes	Yes	
Conn.	Naugatuck	F. W. Eaton									
Fla.	Tampa	Marshall Moore [2]	Yes		Best teachers, at once.	Yes	Yes	Yes	Yes	Yes	Yes.
Ga.	Albany	J. S. Allen									
	Atlanta	W. M. Slaton									
Ill.	Berwyn	E. A. Wilson	Yes		Short time	Yes	Yes	Yes	Yes	Yes	Yes.
	Cairo	F. C. Clendenen									
	La Salle	J. B. McManus	No; never difficult.	Yes	1 year or 1 cycle.	Yes	Yes	Yes	Yes	Yes	Yes; I think so.
	Quincy	E. G. Bauman	Yes	Yes	Not more than 2 years.	Do not know			Yes	Yes	
Ind.	Clinton	E. E. Oberholtzer	Yes	Yes	1 year	Yes	Yes	Yes	Yes	Yes	Yes.
	Columbus	T. F. Fitzgibbon	Yes	Yes	Usually 1 year.	No; not noticeably.	Yes	Yes	Yes	Yes	Yes.
	Evansville	J. H. Tomlin	Yes	Yes	A year or two.	No; not in Indiana.	Yes	Yes	Yes	Yes	Yes.
	Gary	W. A. Wirt	Yes	Yes	2 or 3 years	Yes	Yes	Yes	Yes	Yes	Yes.
	Madison	D. Du Shane	Locates blame clearly.		Do not know			Yes	Yes	Yes	Yes.
	South Bend	L. J. Montgomery	Yes	Yes		Yes			Yes	Yes	
	Vincennes	R. I. Hamilton	Think so; yes.	Yes; think so.	Takes normal teacher longer.	Yes					Yes; would expect that.
Iowa.	Boone	E. C. Meredith							Yes	Yes	
	Cedar Falls	B. Francis [2]	Yes	Yes	Quickly	Yes	Yes	Yes	Yes [3]	Yes [3]	Yes.

[1] Deputy superintendent.

[2] See teachers' list.

[3] Work is adjusted better.

State.	Town or city.	Superintendent or officer reporting.	Does it make it easier to locate blame for poor teaching?	Does it lessen friction between teachers?	How long does it take teacher to adjust herself to plan?	Does a good teacher raise the rate of attendance?	Does it produce greater unity in knowledge of pupils?	Does it produce greater power to apply what they have learned?	Does it produce greater power to apply what they have learned—		Does profounder knowledge of pupils enable teacher to induce better self-control and character?
									To new lessons?	To problems out of school?	
Kans.	Chanute	J. F. Hughes									
	Fort Scott	H. D. Ramsey	Yes.	Yes.	After first year all favor the plan.				Yes.	Yes.	Yes.
Ky.	Lexington	M. A. Cassidy	Yes.	Yes.	Short time.	Yes.	Yes.	Yes.	Yes.	Yes.	Yes.
	Dayton	L. N. Taylor	No.	Think not.	No data.	Possibly.	Yes.	Possibly.	Yes; a little.	No; not much.	No; not as a rule.
La.	Lafayette	L. J. Alleman									
Mass.	Taunton	H. W. Harrub	Yes.								
	Waltham	W. D. Parkinson							Yes, has that tendency.		
Mich.	Kalamazoo	S. O. Hartwell [1]	No.	Change produces friction.		Yes, probably.		Depends on teacher.	Not enough data.		
	Marquette	A. R. Watson									
	St. Joseph	E. P. Clarke	Yes.		2 years.	Yes.	Yes.	Yes.	Yes.	Yes.	Yes.
Minn.	Minneapolis	F. E. Spaulding	No.	More friction	Older ones object.	Do not know	Yes, ought to.	Do not know.	Yes.		Yes, ought to.
	New Ulm	H. C. Hess	Yes.	Yes.	A few months at most.		Yes.	Yes.	Yes.	Yes.	Yes.
	Winona	J. V. Voorhees									
Mo.	Webster	W. D. Grove	Yes.	Yes.	Easily, nearly all like it.	Yes, somewhat.	Yes.	Yes.	Yes, very much.	Yes.	Yes.
Mont.	Bozeman	R. J. Cunningham [1]	Yes.	Yes.	First year.	Yes.	Yes.	Yes.	Yes.	Yes.	Yes.
Nebr.	Kearney	R. E. Cochran			One year.	No.					
N. H.	Concord	L. J. Rundlett									
N. J.	Bayonne	J. W. Carr	Yes.	Yes.		No way to judge accurately.					
	Bloomfield	Geo. Morris [1]	Yes, in a limited way.		2 to 5 years.	No, think not.	Yes, to some extent.	Yes, to some extent.	Yes, in some cases.	No, not necessarily.	
	Hackensack	W. E. Stark									
	Montclair	D. C. Bliss [1]	Yes.	Yes.	Can not say.	Yes.	Yes.	Doubtful.	Yes.	Yes.	Possibly.
N. Y.	Canandaigua	L. N. Steele									
	Jamestown	R. R. Rogers									

	New York City	W. H. Maxwell									
	N. Tarrytown	C. A. Benedict									
	Syracuse	P. M. Hughes	Yes	Yes	No difficulty		Yes, "studies them"	Yes	Yes		Yes, I think so.
N. C.	Newbern	H. B. Craven	Yes		Varies with teacher.	Yes	Yes	Yes	Yes	Yes	Yes.
	Winston-Salem	R. H. Latham			1 year	Yes	Yes	Yes	Yes		Yes.
N. Dak	Bismarck	C. C. Root	Yes		Don't know	No data	Yes, it should.	Yes, it should.	Yes	Yes	Yes.
Ohio	Alliance	H. L. Eby	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes.
	do	B. F. Stanton	Yes	It should	Hard to say	Yes, probably.	Yes, it should.	Yes, if teacher is strong.	Yes	Yes	Yes, if teacher is strong.
	Coshocton	C. E. Bryant	This is strongest argument.		Not long	Yes	Yes	Yes	Yes	Yes	Yes.
	Hamilton	D. Joyce									
	New Philadelphia	C. F. Limbach									
Okla	Guthrie	F. D. Brooks	Yes				Yes		Yes		Yes.
	McAlester	C. N. Peak[1]	Yes		2 years	Yes	Yes	Yes	Yes	Yes	Yes.
	Tulsa	E. E. Oberholtzer									
Oreg	Astoria	J. G. Imel							Yes		
Pa	Carrick	W. H. Sprenkle				Yes	Yes	Yes			Yes.
	Duryea	F. J. Regan[1]	Yes	Yes	At once	Yes		Yes	Yes		Yes.
	Harrisburg	F. E. Downes		Yes	Not longer than by usual plan.				Yes	Yes, but can not say how much.	Yes, I think so.
	Phoenixville	L. Doughton									
	St. Marys	J. J. Lynch									
S. C.	Sumter	S. H. Edmunds									
Tenn	Chattanooga	C. H. Winder									
Tex	Beaumont	H. F. Triplett	Yes	Yes	One term	Yes	Yes	Yes	Yes	Yes, in some cases.	Yes.
	El Paso	R. J. Tighe									
Utah	Logan	A. Molyneux	Yes		Easily made	Yes	Yes	Yes	Yes	Yes	Yes, I think so.
Va	Petersburg	R. R. Jones							Yes	Yes	
	Portsmouth	H. A. Hunt[1]	Yes	Yes		Yes					Yes, most assuredly.
	Richmond	J. A. C. Chandler	Yes			Yes	Yes	Yes	Yes	Yes	Yes.
Wash	Aberdeen	G. B. Miller	Yes	Yes	Can not say	Yes	Yes	Yes	Yes	Yes	Yes.
Wis	Neenah	E. M. Beeman	Yes	In some instances.	Object at first but improve always.	Yes	Yes	Yes	Yes	Yes	Yes.
Wyo	Laramie	W. M. Sinclair	Yes, should be able at once.		Yes	Yes	Yes	Yes	Yes	Yes	Yes.

[1] See teachers' list.

Seventy-eight superintendents, representing 78 cities and towns and 35 States, replied. These cities, towns, and States are representative both in size and geographical location: One, namely, Morganton, N. C., has less than 5,000 inhabitants; thirty have from 5,000 to 10,000 inhabitants; twenty have from 10,000 to 20,000 inhabitants; sixteen have from 20,000 to 50,000 inhabitants; eight have from 50,000 to 200,000 inhabitants; and three have over 200,000—namely, Minneapolis, 301,000; San Francisco, 416,000; and New York City with its 5,000,000.

The list of cities and towns well represents the country ethnologically and industrially as well as geographically. The agricultural, mining, manufacturing, and mercantile interests, in all their varieties, will be found in the various States and districts herein included.

Summary of Replies by Superintendents.

Do you still use the plan?

Of seventy-eight superintendents answering, sixteen said "no," although almost all showed interest. One said, "No; we believe every grade should have a strong teacher." One would think that an ideal reason for trying out this plan. Most of the others who said "no" express an intention to try the plan in the near future. Sixty-two, or nearly 80 per cent of all, said "yes."

In other words, 70 per cent of the superintendents had tried the plan with 10 per cent or more of their teachers; 54 per cent with 20 per cent or more; 45 per cent with 25 per cent or more; 42 per cent with one-third of the teachers; 38 per cent with one-half or more of the teachers. This is a considerable body of evidence.

What percentage of the teachers are promoted?

Of fifty-seven who replied affirmatively, three said "one teacher"; eleven said "a few"; one, "not extensively"; two said "strong teachers"; one said "5 per cent"; six said "10 per cent"; three, "12 per cent to 15 per cent"; five said "20 per cent"; two said "25 per cent"; two, "33⅓ per cent"; three, "50 per cent or 60 per cent"; three, "70 per cent or 75 per cent"; one, "80 per cent"; one, "90 per cent"; four, "all or nearly all"; one, "all intermediate"; one, "primary and grammar"; one, "all primary"; one, "20 per cent of primary and all intermediate"; two, "all with semiannual promotions"; three, in doubt.

What percentage of teachers are kept stationary on the ground that they are not competent for promotion?

A great variety of answers were given from "none for this reason" up to "90 per cent."

Through what grades do you commonly promote the teachers?

Of forty-nine answers, three reported "primary"; one, "all primary and grammar"; fourteen, "primary and intermediate, namely, three reported 2–4; three, 1–5; three, 1–3; three, 2–5; one, 2–6; one, 1–4." Three reported "all the intermediate"; one, "all intermediate and grammar"; five, "all the primary and intermediate"; four, "primary, intermediate, and grammar, viz, two, 2–7; one, 1–7; one, 2–8." Four reported "all the primary, intermediate, and grammar"; three, "the intermediate and grammar, viz, one, 4–8; one, 5–7; one, 6–8"; one, "primary, intermediate and grammar, viz, 2–8"; two, "all grades"; three, "all for one year, at times one and one-half years"; five, "quite irregular for individual needs."

Through what cycles do you commonly promote the teacher?

Of the types of cycles given, eight are all primary; two include all primary [1] and intermediate; nineteen are partial primary and intermediate, viz: eight, 1–3; one, 1–4; one, 1–5; one, 2–3; one, 2–5; two, 3–4; one, 5–6; one, 1a–2b; one, 1–2–3b; one, 2a–3b; one, 3a–4. Fourteen are partial intermediate, viz, one, 3–4; two, 3–5; two, 4–5; one, 4a–5; five, 4–6; three, 5–6. Nine, all grammar; five, intermediate and grammar (partial), viz, one, 5–7; two, 6–7; three, 6–8; three, grammar and high, viz, one, 7–9; two, 8–9; one, high, viz, 10–12.

Does the better acquaintance of the teachers with their pupils result in a saving of school time?

Of the forty-nine who replied to this question, forty-two, or 86 per cent, said "yes"; three, or 6 per cent, said "no"; four, or 8 per cent, are in doubt.

How much time?

Of the twenty who attempt to estimate, four say "5 per cent"; four say "10 per cent"; one says "12½ per cent"; one says "20 per cent"; three say "25 per cent"; one says "33⅓ per cent the first month"; one says "two weeks"; one says "2 to 6 weeks"; one says "one month to six weeks"; one says "one-half year"; one says "one-half year in two or three years"; one says "one-third of pupils save one-half year"; one says "varies with grade and subject"; and another replies "not so much as I had expected." It is clear that the system has not been in operation long enough for superintendents to give an accurate estimate, but the verdict is distinct that the plan saves time.

Does it enable the teacher to keep in closer touch with the home?

Of the forty-nine who reply, forty, i. e., 82 per cent, say "yes"; five say "no"; three are in doubt; and one says "depends on the teacher."

Are you better able to estimate the vocational aptitudes of the individual pupils?

Thirty-six of the forty-four replies, i. e., 82 per cent, say "yes"; four say "no;" and four are in doubt.

Does the teacher get a stronger grasp of the practical work of a given grade?

The forty-nine replies are almost unanimously "yes."

Does she assign lessons and mark more fairly?

Forty-seven replies, forty-five affirmative.

Does she understand the pupils better, have more sympathy and patience, and strive harder to win their affections?

There are no negative replies to this question; of the forty-eight answers, forty are affirmative; eight express some doubt or need of more investigation.

Does the better knowledge of the results of her own work increase the professional zeal of the teacher?

Forty replies; thirty-six, "yes"; one, "no"; three, "in doubt."

Does it enable her to see her own shortcomings more clearly and to strive to correct them?

Of the forty-two who answer, thirty-seven say "yes"; two say "no"; three "are not sure."

Does it make it easier to locate more accurately the blame for poor teaching? Does it lead to less friction?

Thirty-seven say it is easier to locate blame; two say it is not, and one is in doubt. Thirty-seven say that the plan leads to less friction among teachers; five say that it does not, one of these saying "we have no friction"; another, "change produces friction"; and a third "more friction."

How long does it take a normal graduate to adjust herself to this plan?

Two say "at once"; one says "best teachers at once"; four say that it takes but a short time; seven say that it takes about one year; four that it takes two years; one says two to five years; one says "after first year all favor it." Other expressions used: "Older ones object"; "object at first, but improve always"; "takes normal graduates longer";

[1] "Intermediate grades," as used here, are 2–6.

"not longer than the usual plan"; "varies with teacher." Six superintendents are in doubt as to how long it requires.

In the case of good teachers, does it raise the rate of the attendance of pupils?

Forty-five replies. Thirty-two say "yes"; six say "no"; seven in doubt.

Does it lead to greater unity in the knowledge of pupils?

Thirty-nine answers received. Thirty-six said "yes"; three are not certain.

Does it lead to greater power to apply what they have learned?

Forty-one make reply. Thirty-three say "yes"; eight are in doubt.

Greater power to apply what they have learned to new lessons? To problems out of school?

In regard to greater power to solve new school lessons, forty-five say it gives such power; there are no negative replies, though two are in doubt with regard to greater ability to solve out-of-school problems; thirty-four declare it gives such ability; two say that it does not, and one is in doubt.

Does it enable the teacher to train the pupils better in self-control and help to produce better character?

Forty-one replies. Thirty-nine say "yes"; one says "no"; one in doubt.

Many superintendents were so interested in the question that they not only answered the questionnaire, but also wrote additional notes. These are extensively quoted in the following pages:

Additional Notes from Superintendents in Regard to Advancement of Teacher with Class.

Paragould, Ark., L. B. Ray, superintendent.—The plan of promoting teachers with pupils has one objection that is prominent—that is, when friction is aroused between teacher and patron it grows with the successive years that the pupils remain under the same teacher. Weak classes can be carried through a grade by having the teacher promoted with them. The teacher knows where to start, what to do, and how to help the individual pupils, whereas a new teacher has all this to learn and consequently could not take a large per cent of a weak class through a grade.

San Bernardino, Cal., F. W. Conrad, superintendent.—Most teachers prefer to keep the grade they are in.

San Francisco, Cal., T. L. Heaton, deputy superintendent.—It has not been our uniform custom to promote teachers with grades. It has occasionally been done below the sixth grade and always with good results. We have a large number of grammar schools which have been departmentalized in the seventh and eighth grades. It is our rule in these schools to have about half of the day with their class teacher and the remainder of the time with three other teachers. A group of four teachers and classes form the unit of departmentalizing. If a school has a dozen classes in seventh and eighth grade work it would have three such units. Each of the four teachers becomes a specialist in one subject and teaches it to the four classes. Other than these four, subjects are taught by the class teacher. She remains class teacher through the entire two years. When she graduates a class from the high eighth the next term she takes a low seventh class and in two years graduates it. This gives the teacher a strong moral and personal hold upon the children. We find the teacher's influence is not in any way weakened and the children get the benefit of special training. It also prepares children better to enter high school where they must study under a number of different teachers. In our intermediate schools a similar plan is followed.

Oakland, Cal., A. C. Barker, superintendent.—There are no actual means of testing any of these matters, and I believe that there are two sides to these questions. In case a teacher is a valuable one, it is undoubtedly an excellent thing to continue her two years in a grade; on the other hand, it is obvious that, if a child happens to fall

to the lot of a poor or mediocre teacher, he is placed at a serious disadvantage if he remains in her class two years. I am inclined to think that the benefits of rotation are, on the whole, better for teachers than for pupils, as it undoubtedly gives them a broader view of the course of study and of school matters in a general way.

Berwyn, Ill., E. A. Wilson, superintendent.—Teachers should be changed at least every three years, but the power of superintendents is so limited and the tendency of teachers is so great to settle down to one job that it is suicidal to attempt it. By our system a superintendent can not do his best work. It must be handled carefully. Am in favor of change for reasons above.

Clinton, Ind., E. E. Oberholtzer, superintendent.—Result—broader scholarship, closer correlation, fewer failures, more sympathetic teachers.

Columbus, Ind., T. F. Fitzgibbon, superintendent.—We use the plan often to help teachers find themselves, starting with young teachers in the first or second grade and moving them up every year, or two years at most, to the next grade till we have found the grade in which the teacher seems to fit well. We sometimes move a teacher from above down grade by grade for the same purpose. I think if the teachers of the first four grades could move in cycles from first to fourth and back again it would greatly strengthen the teacher and her work, but many of them object to the plan. I once had a teacher, a normal graduate, pass from second to seventh year, carrying with her practically all the pupils that entered with her in the second year. The work done for those children was by far the best I have ever seen.

Gary, Ind., William A. Wirt, superintendent.—We began doing this work at Bluffton, Ind., 1900, because, among other reasons we found that failures in first and second grades were forced to remain another year with a teacher who had failed to awaken them. By advancing a primary teacher to a second grade the primary teacher goes on with her successes and leaves her failures for the second grade teacher who becomes the first grade. Similarly the second grade's failures have a new teacher.

All of the arguments for teachers continuing with the children with whom they are successful are supplemented by the argument that children should be relieved of the teacher who has failed with them regardless of her success with other children.

Madison, Ind., Donald Du Shane, superintendent.—Our plan when fully in operation provides for a 1B teacher who does not advance. The 1A teachers advance to 4B grade. Beginning with 4B, five departmental teachers keep a given child for 2½ years. Then he is turned over to another group of five teachers who keep him for 2½ years or until he is ready for high school. The plan from 4B on has been in successful operation for three years. For the last year and a half we have been experimenting with the plan of advancing the primary teachers with the children for a 2½-year cycle. You will notice that none of our cycles are over 2½ years. Beginning with the fourth grade the departmental teacher of arithmetic, for instance, as truly advances with a pupil as does the primary teacher. The total number of children in any departmental group is limited to 150 pupils and to 5 teachers. As a consequence every teacher knows every child well and is associated with him long enough to understand his difficulties. We are opposed to the plan of advancing teachers for a longer period than three years, because (*a*) many teachers can inspire little children who can not manage those of grammar age, etc.; (*b*) because the time of office of most teachers is not long and the first cycle is experimental in some respects for the average teacher; (*c*) when a teacher resigns it is difficult for a new teacher to do effective work if the cycle is or has been too extensive.

Cedar Falls, Iowa, B. Francis, superintendent.—A teacher who excels in a certain grade is more valuable when retained in that grade, but a difficult grade can often be handled better by transferring the teacher with these. We do not do this ordinarily.

Fort Scott, Kans., H. D. Ramsey, superintendent.—We began this system, covering two grades, two years ago. Before that time we admitted beginning pupils twice a

year, at the beginning of the year, and at the close of the first term in January, but two years ago we changed our plan by admitting all pupils who would be eligible for admission during the year at the beginning of the year only. By so doing each teacher kept her own pupils and was advanced to the next grade with her class.

We have found this plan satisfactory in every respect. The teachers are more in sympathy with the teachers in grades above them and they have been able to discover wherein their work in the past has been weak. We favor the plan of admitting all pupils who are beginners at the first of the year and thus saving the formation of a new beginning class at the middle of the year.

Dayton, Ky., L. N. Taylor, superintendent.—Teachers should be changed from one intermediate grade to another often enough to give them a wide and full grasp of their duties as teachers and to keep them out of the ruts of self-satisfied habit, and to keep them on their mettle, but I find it objectionable to promote them regularly with their classes. More than that, I find advantages strongly favoring the semiannual promotion plan, each teacher having two classes doing work half-year apart. This is not consistent with the promotion of teachers with their pupils.

Teachers become more flexible in the use of their powers when they change grades occasionally. But the occasional change of teachers as a child goes through the city school system seems to be the right of the child and to his advantage.

Taunton, Mass., H. W. Harrub, superintendent.—We do not practice the advancement of teachers with their pupils. In some rooms we have done so, where conditions made that course most advantageous. The general practice would not be feasible. We regard the principle as a valuable one, and intend to use it where it can be applied to good advantage.

Waltham, Mass., W. D. Parkinson, superintendent.—We have had no experience which justifies conclusions on the foregoing. In theory affirmations would be easy. But on the whole the question has many practical bearings and it reduces to the alternatives of exposing a child for a longer or a shorter period to the dominating influence of an individual, and consequently of decreasing or increasing the number and variety of such personalities to which he shall be exposed. Personally, I believe that in a fairly permanent and well-selected teaching force it would be better to have pupils continue three years with the same teacher; but if teachers change often anyway, and are comparatively inexperienced, it is probable that there would be more loss than gain in continuing the inexperienced teacher with a class covering new ground instead of letting her pilot a new class over ground she had become somewhat familiar with.

Kalamazoo, Mich., S. O. Hartwell, superintendent.—We have done something of this sort occasionally, but have hardly carried it to the point of a plan. At present our emphasis in the lower grades is rather on the modified form of the Gary plan, which accomplishes the same results, so far as special teachers are concerned, but has not embodied this point regularly for the so-called regular teachers.

The questions of the blank—at least, the later ones—are evidently framed from the point of good teachers. Now, I think we have our proportion of good teachers; but, like other places, we have at least a proportion of weak ones, and any plan of the kind must be made from that side also. Possibly the plan might bring a concentrated attention on weakness and thus work toward elimination.

Kearney, Nebr., Roy E. Cochran, superintendent.—This whole thing depends on the individual teacher. Ideal teachers are few. A change is advisable where the teacher lacks in some qualities advisable to give the pupils. I think longer than three years at any time is an error.

Concord, N. H., L. J. Rundlett, superintendent.—We tried it a number of years ago, beginning with the first grade and extending through four years. The experiment was tried with a class of retarded children, with the result that at the end of

two years they were able to read any ordinary fourth reader and at the end of three years Cyr's Fifth Reader. I am considering trying the experiment again, and shall be glad to report at the end of that time.

Bloomfield, N. J., George Morris, superintendent.—One of our chief reasons for using the plan is to locate teachers in the grade in which they can do the best work. For example, we study a third-grade teacher and think she would make a strong fourth-grade teacher. We have her go on with her class to the fourth grade, and in most cases find our judgment confirmed. Occasionally we feel that this same teacher would do well in departmental work, and only this year we have promoted one or two teachers to departmental work and feel pleased with the change.

On the other hand, we frequently feel that a teacher would do better work in a lower grade, and experiment in that direction also.

Hackensack, N. J., William E. Stark, supervising principal.—We have semiannual promotions throughout our schools, and many teachers would like to limit their fields to a single half year. We have, however, a definitely adopted policy of making a year the minimum period of consecutive work with a class for any teacher, except in unusual situations. I encourage our teachers to broaden the scope of their work still more, and occasionally a teacher goes on with her class for an additional half year or year. This practice, however, has been so rare that no generalizations can be based upon the matter.

I feel that it would be an advantage to schools if more teachers were ready to broaden their range of work, and I hope to be able to use the results which you publish of experience elsewhere to convince the teachers that the proposed plan is practicable.

Montclair, N. J., D. C. Bliss, superintendent.—We do not make this plan the regular practice. Rather, it is the occasional plan to fit a peculiar condition or to secure special results.

New York, N. Y., William H. Maxwell, superintendent.—I have urged principals wherever it was feasible to advance teachers with their pupils from grade to grade and then to return to a fixed point. A great many principals are doing this. I have not obtained definite statistics as to how many are doing it. In some cases we have two grades for the year. The cycle includes only one year. In other cases it includes three or four years, and never more than six.

Newbern, N. C., H. B. Craven, superintendent.—In order to keep teachers out of a rut, I usually change them after teaching a grade for two years, but seldom change a primary teacher to the grammar school or grammar school to high school.

Bismarck, N. Dak., Charles C. Root, superintendent.—We have such frequent changes of teachers that the plan can hardly be used here.

Kent, Ohio, H. L. Eby.—The greatest objection that I have to keeping the teacher stationary in the grade is the narrowing effect of the custom, both on the teacher directly and on the school indirectly. By that practice the teacher does not see enough of the process to be able to interpret it fully. By doing the same work from year to year the teacher does not acquire standards of value and comparison with which and through which to measure the work being done. A high degree of skill is acquired by limiting the program of the teacher to a single grade, or even a single subject, from term to term. But this custom makes the mistake of assuming the teaching process to be like the part a member of a baseball team plays and that the process of education is like that of a baseball game. All that is required of the individual teacher is to acquire a certain special skill within the limited program. The success of the plan is made to depend upon the degree of special skill each member of the teaching force can bring to the work. If the tools of learning could be controlled with the same precision with which a bat and ball are controlled in the hands of the player, and if the reaction of the pupil toward the subject matter

of the curriculum could be as definitely determined as the reaction of the ball player toward the tools of the game, then the plan of keeping the teacher stationary in the grade would have better reason for its existence. But children are not as easily controlled as the inert baseball, nor can a boy's reaction toward the work of the school be as easily determined as can his reaction toward the bat and ball in a game. The two skills are not comparable.

Again, the ideal of the factory system of industry, with its minute division of labor, controls the schools far too much. But here, as in the case of the baseball game, industry is dealing with inert material. Nor do the parts of the curriculum bear the same exact relationship to each other as do the many simple parts of manufacture to the completed article. It is not to be desired that they should. I think it is quite generally agreed that while industry is making more and better articles, yet it is unmaking men. The loss of the educative value of industry to society resulting from the highly divided forms of labor threatens the very quality of labor and its product. The problem of labor and industry is, How can highly specialized skill in an uneducative process and the human factor on which the quality of the work so much depends be conserved together? A similar problem confronts educators. Personally, I deplore that the ideal of the factory system has so gripped our schools. It seems to me that your plan of promoting teachers with their pupils is the proper solution of this problem.

Alliance, Ohio, B. F. Stanton, superintendent.—I have not followed the general practice of advancing teachers. Where I have done so, in some cases at least, the teacher has been unusually strong, and very satisfactory results have followed.

Hamilton, Ohio, Darrell Joyce, superintendent.—We made some trial of promoting teachers with their pupils from grade to grade.

While we found that the plan saved some time, we are not now following it, because we also found that at least one-half of the pupils would change within three or four years; that is, a teacher starting with 40 first-grade pupils could expect to have only 20 of the same pupils by the time the fourth grade was reached. I believe, however, that it is not a bad plan if the teachers are efficient.

Guthrie, Okla., F. D. Brooks, superintendent.—We promote teachers with pupils where we think it best. It is not a fixed part of the system that applies rigidly in any grades. We also transfer teachers sometimes from lower to higher and from higher to lower grades. When we send the teacher along with her pupils it is because we think she can handle that particular lot of pupils better than another teacher. A few times it has been especially for the teacher's good—she has discovered her weaknesses.

Harrisburg, Pa., F. E. Downes, superintendent.—It has been our custom in Harrisburg, for 8 or 10 years at least, for teachers to hold their pupils two years before transferring them to another teacher. Work is arranged in cycles as follows: Second and third years, fourth and fifth years, sixth and seventh years, and eighth and ninth years. Recently we have changed from a ninth-grade elementary to an eighth-grade plan, and just as soon as our ninth grade is eliminated we will also have semiannual promotion. It is our purpose under the new plan to have each teacher, so far as possible, hold her pupils through four half years, or two full years, as at the present time. Of course it will not always be possible to do this. However, when not done, it will be the exception; the rule will be to do it. Our teachers, generally, prefer this method—in fact they have gotten to the point of objecting when they are required to be responsible to the next grade teacher if allowed to hold a class only one year.

Logan, Utah, A. Molyneux, superintendent.—The first grade, I believe, partakes too much of specialization to warrant the change of teachers. The sixth, seventh, and eighth grades are segregated from the lower grades. In these grades we do departmental work. This prevents the adoption of this plan above the fifth grade.

We have experienced much difficulty in preserving class unity. This is due to new entries and to shifting or changing of residence in the community.

Richmond, Va., W. M. Adams, principal.—We are trying out cycles of two entire years and will reach the last term in the cycle with the term ending June, 1915.

I am well pleased with the results so far.

We shall extend the experiment throughout the primary grades and into the grammar grades (fifth and perhaps sixth years), beginning with February, 1915.

Neenah, Wis., E. M. Beeman, superintendent.—We have an assistant in a seventh grade this year who has moved along with about 30 pupils from the fourth grade. There are 75 pupils in this seventh grade. She is so much more effective as a teacher with the 30 than with the strangers that I hope to plan regular promotions in this school and use the new teachers in third and fourth grades where possible.

I have always been very particular in the selection of teachers for promotion with pupils and have therefore no record of any failures. I am of the opinion that only teachers of ability can adjust themselves to this plan. For strong teachers, I am convinced, after 11 years of experiment, that it is a wonderful advantage to all concerned.

Laramie, Wyo., William M. Sinclair, superintendent.—The plan is in limited operation as yet. We have too many normal-school graduates who want to teach in second or third grades only. Out of more than 100 applicants for grade positions 70 were for second or third.

OPINIONS OF TEACHERS.

As a number of the superintendents of schools furnished the names of teachers who had had experience in advancement with pupils, and who would therefore be in the best position to judge of the merits of the plan, it seemed important to learn their opinions.

Another reason for making inquiry of the teachers is that one could doubtless obtain from them an impression as to how the children responded to the plan. A questionnaire was accordingly sent to the teachers, and 97 replied. They represent 43 schools, in 12 States, and 18 cities. An examination of the list shows that these also are well distributed geographically.

Table 2 is presented in three parts. To obtain complete answers for any one State, city, or school, therefore, it is necessary to refer to each part in turn. Thus Tampa, Fla., appears on pages 32, 38, and 44.

State.	Town or city.	School.	Teacher.	Training and experience.	Graduate of normal or training school.		Length of experience with this system.	
					Where?	When?	Where?	When?
Fla.....	Tampa.....	Hyde Park.....	Fannie Cumming.....	High-school graduate; student at Stetson University.	No, but attended several.	.....	Tampa.....	1909–10; 1912–1914.
	.....do.....	Michigan Avenue.	Agnes Everett.....	High-school graduate; attended summer school Knoxville and Columbia.	No.....	.....	.....do.....	1911–1915.
	.....do.....	.....do.....	Mrs. Neta Fleagle.....	16 terms in primary grades.....	No; 8 sessions in summer normals.[1]	.....	.....do.....	1914–15.
	.....do.....	.....do.....	Maude J. Harter.....	2 years in Oberlin, 1 in University of Michigan, Los Angeles, etc.	Yes.....	.....	Citra and Tampa.	
	.....do.....	.....do.....	Ethel A. Morse.....	Peabody Summer School, Florida State College, etc.	Yes; American Correspondence Normal.	July, 1906.	Port Tampa City and Tampa.	1905–1908; 1912–13.
Iowa...	Cedar Falls....	Lincoln.....	Genevieve Griffith....	Iowa State Teachers' College; taught 10 years..	No.....	.....	Lake City, Cedar Falls, Kaukauna.	
Mich...	Kalamazoo....	Woodward Avenue.	Laura H. Gee.....	Graduate high school; 6 years' experience as teacher.	Yes; State Normal.	1911...	Zeeland, Kalamazoo.	4 years.
	.....do.....	Lovell Street.....	Bernice A. Perry.....	High school, State Agricultural College, Central State Normal; 9 years' experience.	Yes; Central State.	1907...	Kalamazoo ...	4 years, 1910–1914.
	.....do.....	Lake Street.....	Blanche C. Kaltz.....	Graduate high school; 8 years' experience as teacher.	Yes; Kalamazoo, Ypsilanti.	1904, 1909.	.....do.....	1 year, 1913–14.
	.....do.....	North West Street.	Edith A. Lent.....	2 years in Western State Normal; 1 year's experience Howell, 4½ years', Kalamazoo.	Yes; Kalamazoo.	1910...	.....do.....	1912; 1914–15.
	Shelby.....	Public school	Florence Wylie.....	Graduate high school, Michigan State Normal; 10 years in grades.	Yes; Michigan State Normal.	1914...	Shelby.....	4 years, 1904–1909.
Minn...	Minneapolis...	Simmons.....	Jane S. Miller	Graduate high school; 2 years' city training school.	.....	.....	Minneapolis...	4 years, 1911–1915.
Mont...	Bozeman.....	Hawthorne.....	Emma Sparling.....	High school, Colorado Teachers' College, Denver University, 11 years' experience.	Yes; Colorado Teachers' College.	1905...	Bozeman.....	1 year, 1931–14.
	.....do.....	Irving.....	Alice Roy.....	Normal College; 1½ years' experience.....	Yes; Dillon ...	1913...	.....do.....	1 year, 1914–15.
N. J....	Bloomfield....	No. 4 Center.....	Dora E. Adams.....	Graduate high school; 5½ years' experience...	Yes; Trenton, N. J.	1910...	Bloomfield....	1914–15.
	Montclair.....	Cedar Avenue.....	L. Elaine Bordwin....	8 years' experience.....	Yes; Worcester, Mass.	1908...	Montclair.....	Do.
	.....do.....	Hillside.....	Alice E. Chandler.....	Graduate Wellesley College; 14½ years' experience.	No.....	.....	.....do.....	3 years ago and now.

	.....do.....	Watchung	Edna H. Jones.....	High school, Normal Practice, 6th and 8th grades, Pratt Institute; 5 years' experience.	Yes;State Normal.	1910...	.....do.....	2 years, 1913–14.
	.....do.....	Maple Avenue....	Alfreda M. Miller.....	Experience, 5½ years.....	Yes; Fitchburg	1911...	.....do.....	1 year, 1914–15.
	.....do.....	.....do.....	B. H. Wetherby.....	Taught in Montclair 9½ years.....	Cortland Normal, N. Y.	1905...	.....do.....	4 years, 1911–1915.
N. Y...	Syracuse.....	Croton.....	Helen Curtin.....	Graduate high school; 20 weeks' practice, 11 years' experience.	Yes; Oswego..	1904...	Mexico, N.Y., Marcellus, Syracuse.	11 years, 1905–1915.
	.....do.....	.....do.....	Tracy H. Lowe.....	Graduate high school; taught grades 1, 2, 4, 6, 7, 8.	No.....	.....	Croton School.	6 years, 1908–1914.
	.....do.....	Prescott.....	Matilda Miller.....	Training in Putnam School.....	Syracuse Training School.	1892...	Prescott School, Syracuse.	10 years, 1905–1915.
	.....do.....	.....do.....	M. E. Whan.....	5 months preparatory class, 5 months teachers' class, 5 months primary class.	Syracuse.....	1896...	Syracuse Normal School.	12 years, 1902–1915.
N. C...	Morganton ...	Graded school	Mrs. W. R. Marbut...	Graduate college with normal department; 30 years' experience.	Yes; Griffin, Ga.	1897...	Morgantown..	Last 25 years.
	Newbern.....	.....do.....	Mollie H. Heath.....	Private school, summer school; 30 years' experience.	No.....	.....	Newbern.....	5 or 6 years.
	.....do.....	Newbern City School.	Eleanor E. Marshall...	Graduate high school, 2 years at State Normal; 10 years' experience.	.....	.....	.....	3 terms in last 5 years.
Okla...	McAlester.....	Second ward	Mary White.....	Attended University of Oklahoma, 1910.....	No.....	.....	McAlester.....	Occasionally; 1912–1915.
	Tulsa.....	River View.....	Mrs. Leslie Fuller.....	Graduate, high school, normal department, Cotner University; 2½ years college.	Yes; Bethany Heights.	1907...	Bethany.....	1902; 1905.
	.....do.....	.....do.....	Gail D. Swartz.....	High school, summer normals; 5 years' experience.	No.....	.....	Tulsa.....	4 years; last 3 years.
Pa.....	Duryea.....	Washington.....	Nellie Heath.....	Graduate, high school; 8 years' experience.....	.....	.....	.....	2 years, 1913–1915.
	.....do.....	.....do.....	Delia Murphy.....	Graduate, high school; 3 years' experience.....	No.....	.....	Duryea.....	Do.
	.....do.....	.....do.....	Theresa Jackson.....	Graduate, normal school; 7 years' experience..	East Stroudsburg.	1906...	.....do.....	2 terms, 1913–14.
	Harrisburg....	Camp Curtin.....	L. LaVene Grove.....	Graduate, high school and training school; 1 summer at Cornell; 10 years' experience.	Yes; teachers' school, Harrisburg.	1905...	Harrisburg....	3 years, 1909–1911.
	.....do.....	Sixth grade.....	Elizabeth A. Dum....	Graduate, normal school; 15 years' experience.	Millersville, State Normal.	1899...	.....do.....	10 years, 1904–1914.
	.....do.....	Ninth grade.....	Carrie L. Faries.....	Courses in high school.....	No.....	.....	.....do.....	10 years, 1905–1915.
	.....do.....	(?).....	Ruth K. Wells.....	Graduate, teachers' school; 6 years' experience.	Yes; Harrisburg teachers' school.	1909...	.....do.....	6 years, 1909–1915.
Utah...	Logan.....	Woodruff.....	Ethel Hill.....	Graduate, normal school and teachers' school; 5 years' experience.	Yes; both; Logan.	1908...	Logan.....	2 years, 1912–13.

[1]Hillsboro and Columbia.

TABLE 2.—*Advancement of teacher with class; replies from teachers*—PART I—Continued.

State.	Town or city.	School.	Teacher.	Training and experience.	Graduate of normal or training school?		Length of experience with this system?	
					Where?	When?	Where?	When?
Va.....	Portsmouth...	High Street School.	Mrs. L. M. Weaver....	3 years' college; 20 years' rural teacher; 3 years in Portsmouth.	.....	.....	Rural school and in Portsmouth.	23 years.
	Richmond....	Arents.....	M. R. Briggs.....	Graduate, normal school; 2 sessions' experience.	Yes; Farmville.	1912...	Arents School.	1913–14.
	.....do.....	.....do.....	Carrie Swetman	High school; Randolph Woman's College; 3 years' experience.	Yes; West Virginia summer school.	1913...	Richmond....	2 years, 1912–1914.
	.....do.....	.....do.....	Mary Tucker.....	2 years normal teacher; 1 years' experience....	Yes; Richmond Normal.	1913...	Arents School.	1 year, 1913–14.
	.....do.....	Bainbridge.....	Evelyn Fitzgerald.....	High school, 2 years' college, 1 year pupil teacher, 2 summers' normal.	No.....	.....	Bellevue School.	1 year, 1913.
	.....do.....	.....do.....	Mildred Potts.....	High school, 2 years at normal; 1 year's experience.	Yes; Farmville.	1913...	Richmond....	1 year, 1913–14.
	.....do.....	.....do.....	Clara O'Brien.....	High school, normal, University of Virginia; teachers' college.	Yes; Virginia State Normal.	1895...	.....do.....	
	.....do.....	.....do.....	Katherine K. Scott....	High school, 7 years' work at University of Virginia summer school; about 10 years' experience.	University of Virginia summer school.	1913 and 1914 certificates	.....do.....	Do.
	.....do.....	Baker.....	W. L. Brock.....	Normal and training school; about 6 years' experience.	Yes; Richmond.	1908...	Baker School..	1 year, 1914.
	.....do.....	.....do.....	A. V. Randolph.....	Normal training at high school; also pupil teacher.	.....do.....	1911...	.....do.....	2 years, 1913–1915.
	.....do.....	.....do.....	S. B. Robinson.....	Post graduate, high school, about 4 years' experience.	Yes; teachers' course high school.	1910...	.....do.....	One term, 1914.
	.....do.....	Bellevue.....	M. C. Cocke.....	State normal about 9 years.....	Yes; Farmville.	1905...	Bellevue School.	1 year, 1913–14.
	.....do.....	.....do.....	E. Cleve Gary.....	High school, 1 year at Union College, Richmond; 5 years' experience.	.....	.....	Westhampton, Richmond.	5 years, 1910–1915.
	.....do.....	.....do.....	E. Hartung.....	Graduate and post graduate, high school; about 8 years' experience.	No.....	.....	Bellevue School.	1 year, 1914–15.

.....do.....	.....do.....	E. N. Jamison.....	Normal, summer at Columbia; 6 years' experience.	Yes; Farmville.	1908...	Smithfield, Salem, Richmond.	6 years, 1908–1915.
.....do.....	.....do.....	Attie Lee Lynn.....	Public schools, normal college; 19 years' experience.	Yes; Peabody Normal College.	1899...	.....	
.....do.....	.....do.....	N. M. Mondy.....	Public school, inclusive of post graduate at high school.	.....	.....	Richmond....	2 years, 1912–1914.
.....do.....	.....do.....	M. L. Mondy.....	.....do.....	No.....	.....	.....do.....	Do.
.....do.....	Cary.....	Fannie Powell.....	.....	High School, Richmond.	1908...	.....do.....	2 years, 1911–12.
.....do.....	.....do.....	Irene E. Walton.....	Graduate, normal course of high school, summer course; 6 years' experience.	.....	.....	Cary School...	2 years, 1912–1914.
.....do.....	Chimborazo.....	Mattie M. Points.....	Post graduate, high school, summer course; 9 years' experience.	.....	.....	Richmond....	3 years, 1912–1915.
.....do.....	.....do.....	Alice Ratcliffe.....	Graduate, high school, 1 year normal school work, summer courses also.	.....	.....	Chimborazo...	2½ years, 1912–1914.
.....do.....	.....do.....	H. Shackelford.....	Graduate, high school, with 1 year's normal training; 2 summer courses at Columbia; 9 years' experience.	.....	.....	Richmond....	3 years, 1912–1915.
.....do.....	Elba.....	Mary V. Hall.....	Graduate high school and postgraduate, special courses; 9 years' experience.	.....	.....	Elba School...	2 years, 1913–1915.
.....do.....	.....do.....	E. T. James.....	Postgraduate, high school; about 7 years' experience.	Richmond High School.	1908...	.....do.....	2 years, 1912–1914.
.....do.....	.....do.....	Sallie L. Russell.....	Postgraduate, high school; 12 years' experience, grades.	.....do.....	1902...	Richmond....	1913–14.
.....do.....	Fairmount.....	F. L. Christian.....	.....	Farmville.....	1908...	.....	7 years.
.....do.....	.....do.....	D. C. Garrison.....	High school, summerat Harrisburg, normal; about 7 years' experience.	Richmond High School.	1907...	Richmond....	3 years past.
.....do.....	.....do.....	Mary G. Hargrove....	Graduate, high school.....	John Marshall.	1910...	Fairmont School.	1 year, 1913–14.
.....do.....	.....do.....	Lenore B. Kolbe.....	High school, summer school University of Virginia.	Richmond High School.	1908...	Richmond....	3 years past.
.....do.....	Fox.....	Rebecca Bowman	Postgraduate high school, summer normal, University of Virginia and Columbia; 8 years' experience.	.....	.....	Fox School....	1 session, 1913–14.
.....dd.....	.....do.....	J. N. Walsh.....	Graduate and postgraduate summer courses, Cornell; 15 years' experience.	1 year in training class.	1896...	.....do.....	1913.
.....do.....	Ginter Park.....	Ola Lee Abbitt	High school and at Farmville Normal.....	Yes; Farmville	1910...	.....do.....	2 years, 1913–1915.
.....do.....	Jackson.....	Mary B. Chappell.....	Postgraduate, high school, summer normal; about 8 years' experience.	No.....	.....	Richmond....	2 years, 1913–14.
.....do.....	.....do.....	Lilian G. Cook.....	2 years at Farmville; 4 years' experience.....	Yes, Farmville	.....	Jackson School.	2 years, 1913–1915.
.....do.....	Mason.....	Mamie L. Daggett.....	Graduate, high and normal and postgraduate; 4 years' experience.	Yes; Richmond	1908...	Mason.....	1 session, 1914.
....do.....	Navy Hill.....	H. B. Robinson.....	Public-school training; 12 years' experience...	Yes; Richmond Normal.	1898...	Richmond....	2 years.
....do.....	.....do.....	A. H. Tilghman.....	High and normal and postgraduate, summer work; 8 years' experience.	Richmond....	1902...	.....do.....	1 year, 1913–14.
....do.....	.....do.....	Margaret L. Tinsley...	High and normal, summer courses	Richmond Normal.	1891...	Navy Hill School.	3 times, 1897, 1900, 1913.
....do.....	.....do.....	Fannie M. Williams..	Public school, summer school; 21 years' experience.	Richmond....	1894...	.....do.....	1 year, 1912.

TABLE 2.—*Advancement of teacher with class; reports from teachers*—PART I Continued.

State.	Town or city.	School.	Teacher.	Training and experience.	Graduate of normal or training school?		Length of experience with this system?	
					Where?	When?	Where?	When?
Va.....	Richmond.....	Nicholson.....	Virginia Baker.....	Public school, summer school; experience in Richmond.	No.....	.....	Nicholson..	1 year, 1913-14.
	....do.....	.....do.....	E. M. Boyle.....	Richmond School, summer normal for 2 years..	Normal department Richmond High School.	1908...	.do.....	1½ years, 1913-14.
	....do.....	.....do.....	P. Chadick.....	Richmond School and summer normals.....	No.....	.....	.do.....	1 year, 1913-14.
	....do.....	.....do.....	N. F. Hall.....	5 years' experience.....	Yes; Richmond.	1909...	Richmond....	3 years, 1913-14.
	....do.....	.....do.....	Eva B. Howle.....	Postgraduate, high school, certificate University of Virginia summer school; 13 years' experience.	No.....	.....	Nicholson..	Do.
	....do.....	.....do.....	Elizabeth Lindsey....	Full course, State normal; experience in North Carolina and 5 years in Richmond.	Farmville.....	1896..	.do.....	1 semester, 1913-14.
	....do.....	.....do.....	F. B. Norfleet.....	Graduate, high school, University of Virginia summer school; experience in Richmond.	No.....	.....	Richmond....	1 year, 1913-14.
	....do.....	.....do.....	Battie L. Puller.....	3 years' normal school; 1 year's experience.....	Harrisburg Normal.	1913...	Nicholson.	Do.
	....do.....	.....do.....	Lillie Shepperson.....	Graduate and postgraduate, high school.....	No.....	.....	Richmond....	22 years, 1892-1914.
	....do.....	Powhatan.....	Ines L. Clary.....	.....	Yes; Farmville.	1904.	Powhatan School.	1 year, 1913-14.
	....do.....	.....do.....	Bessie E. Sampson....	.....	....do.....	1908..	Powhatan...	Do
	....do.....	.....do.....	Bessie Wells.....	14 years' experience.....	Farmville....	1901.	Richmond....	3 years, 1911-1914.
	....do.....	.....do.....	Ida Woodward.....	Graduate highschool; 26 years' experience	No.....		....do.....	1 term, 1914.
	....do.....	Smith.....	Mary Dickerson.....	Graduate, postgraduate, high school, 1889; experience since, all grades.	Yes; high school and postgraduate.	1889 and 1890.	Jefferson School.	24 years.
	....do.....	.....do.....	Sarah A. Forbes.....	Graduate and postgraduate, high school.....	.....	.....	Smith.....	2 years, last two
	....do.....	.....do.....	E. L. Puller.....	Postgraduate, high school; 1 session at Smith School.	Yes.....	1909...	.....do.....	1 year, 1913-14.
	....do.....	Springfield.....	J. H. Halloran.....	Graduate, high school, about 13 years' experience.	Yes; Richmond.	1901...	Springfield School	9 years, 1913-1914
	....do.....	.....do.....	R. Estelle Shackelford.	Graduate, high school, college summer work; about 22 years' experience.	Training class, Richmond High School.	1891.	Department work, Richmond School	5 6 years last.

TABLE 2.—*Advancement of teacher with class; replies from teachers*—PART II.

State.	Town or city.	School.	Teacher.	Through what grades or cycles now?	Make school work harder or easier?	Save time in classroom?		Save time—		More intimate acquaintance makes it easier—		
						Your time?	Pupil's time?	In other ways?	What per cent?	(a) To visit homes?	(b) To win affections?	(c) To exercise discipline?
Fla.....	Tampa.....	Hyde Park.....	Fannie Cumming.....	Now 1–2; formerly 2–3.	Easier because more interesting.	Yes.	Yes.	.....	.....	.....	.....	.....
	.....do.....	Michigan Avenue.	Agnes Everett.....	5–8.....	Easier...	Yes.	Yes.	Organising and planning.	One-half.....	Yes.....	Yes.....	Yes, in most cases.
	.....do.....	.....do.....	Mrs. Neta Fleagle.....	1–2.....	...do.....	Yes.	Yes.	Yes.....	About 4 weeks	Yes.....	Yes.....	Yes.
	.....do.....	.....do.....	Maude J. Harter.....	.....	...do.....	Yes.	Yes.	Yes.....	.....	Yes.....	Yes.....	Yes.
	.....do.....	.....do.....	Ethel A. Morse.....	4–7.....	...do.....	Yes.	Yes.	Yes; explanations, etc.	25 per cent....	Yes.....	Yes.....	
Iowa...	Cedar Falls.....	Lincoln.....	Genevieve Griffith....	.....	...do.....	Yes.	Yes.	Yes.....	One-half year.	Yes.....	Yes.....	Yes.
Mich...	Kalamazoo.....	Woodward Avenue.	Laura H. Gee.....	7–8.....	...do.....	Yes.	Yes.	Yes.....	.....	.....	Yes.....	Yes.
	.....do.....	Lovell Street.....	Bernice A. Perry.....	5–6–7.....	...do.....	Yes.	Yes.	Yes; preparing and correcting work, etc.	.....	Too much work for that.	Yes.....	Yes.
	.....do.....	Lake Street.....	Blanche C. Kelts.....	4–5.....	...do.....	Yes.	Yes.	Yes.....	One-fourth....	Yes.....	Yes.....	Yes.
	.....do.....	North West Street	Edith A. Lent.....	4–5.....	...do.....	Yes.	Yes.	Yes; organization.	.....	Yes.....	Yes.....	Yes.
	Shelby.....	Public school	Florence Wylie.....	Not at present; 3–4–5.	.. do.....	Yes.	Yes.	Yes; planning work, etc.	.....	Yes.....	Seemed to be.	Yes.
Minn...	Minneapolis.....	Simmons.....	Jane S. Miller	B 3d, B 4th, A 5th, B 6th. A 6th.	...do.....	Yes.	Yes.	Yes.....	.....	Yes.....	Yes.....	Yes.
Mont...	Bozeman.....	Hawthorne.....	Emma Sparling.....	3–4.....	No harder.	Yes.	A little.	More time for individual help.	One-third.....	Yes.....	Yes.....	Yes.
	.....do.....	Irving.....	Alice Roy.....	3–4.....	Easier...	Yes.	Yes.	Yes.....	Could not say.	Yes.....	Yes.....	Yes.
N. J....	Bloomfield.....	No. 4 Center.....	Dora E. Adams.....	5–6.....	...do.....	Yes.	Yes.	Yes; selecting and working out explanations.	Perhaps 1 month.	Yes.....	Yes.....	Yes.

TABLE 2.—*Advancement of teacher with class; replies from teachers*—PART II—Continued.

State.	Town or city.	School.	Teacher.	Through what grades or cycles now?	Make school work harder or easier?	Save time in classroom?		Save time—		More intimate acquaintance makes it easier—		
						Your time?	Pupils' time?	In other ways?	What per cent?	(a) To visit homes?	(b) To win affections?	(c) To exercise discipline?
N. J...	Montclair.....	Cedar Avenue.....	L. Elaine Bordwin..	5–6.....	Easier...	Yes.	Yes.	In establishing routine.	.....	Always easy here.	Pupils are affectionate anyway.	Possibly.
	.....do.....	Hillside.....	Alice E. Chandler...	4th and 6th.	Easier, but am not in a system.	Yes.	Yes.	.....	1 month.....	Easier but less necessary.	No.....	Yes.
	.....do.....	Watchung	Edna H. Jones.....	3, 4, 5, and 4, 5, 6.	No easier	Yes.	Yes.	.....	1 year.....	Yes.....	No.....	No.
	.....do.....	Maple Avenue....	Alfreda M. Miller....	4–5.....	Easier...	Yes.	Yes.	Yes.....	6 to 8 weeks...	Yes.....	Yes.....	Yes.
	.....do.....	.....do.....	B. H. Wetherby....	2, 3, 4, 5, 6.	...do.....	Yes.	Yes.	Yes.....	2 months.....	Yes.....	Yes.....	Yes.
N. Y...	Syracuse.....	Croton.....	Helen Curtin.....	7th grade, first and second halves.	...do.....	Yes.	Yes.	Yes; preparation of lessons.	2 months per term.	Somewhat	To a certain extent.	To a certain extent.
	.....do.....	.....do.....	Tracy H. Lowe.....	8^1–8^2.....	...do.....	Yes.	Yes.	.....	.....	Not necessarily.	Yes.....	Yes.
	.....do.....	Prescott.....	Matilda Miller.....	7^1 and 7^2...	...do.....	Yes.	Yes.	Yes.....	3 weeks.....	Yes.....	Yes.....	Yes.
	.....do.....	.....do.....	M. E. Whan.....	Through 8th year.	...do.....	Yes.	Yes.	.....	1 month or more.	Yes.....	Yes.....	Yes.
N. C...	Morganton.....	Graded school	Mrs. W. R. Marbut.	5, 6, 7.....	...do.....	Yes.	Yes.	In home work; yes.	One-fourth....	Yes.....	Yes.....	Very much easier.
	Newbern.....	.....do	Mollie H. Heath.....	1–2.....	...do.....	Yes.	Yes.	Yes.....	Very much....	Yes, more time for it.	Already won.	Not always.
	.....do.....	Newbern City School.	Eleanor E. Marshall.	3–4.....	...do.....	Yes.	Yes.	Yes.....	10 minutes daily first month.	Have seen no difference.	Yes.....	Yes, as a rule.
Okla...	McAlester.....	Second ward.....	Mary White.....	4–7.....	...do	Yes.	Yes.	Yes.....	.....	Sometimes.	Very much	Yes.
	Tulsa.....	River View.....	Mrs. Leslie Fuller...	4, 5, 6.....	...do....	Yes.	Yes.	Yes.....	.....	Yes.....	Yes.....	Yes.
	.....do.....	.....do.....	Gail D. Swarts.....	3b–3a, 4b–4a, 5b.	...do....	Yes.	Yes.	Yes.....	One-half month per semester.	Yes; they beg it.	Yes, common interest.	Yes.

Pa.....	Duryea.....	Washington.....	Nellie Heath.....	1a–2b.....	...do....	Yes.	.....	.....	.....	Yes.....	Yes.....	Yes.
	.....do.....	.....do.....	Delia Murphy.....	1–2.....	...do....	Yes.	Yes.	.....	.....	No.....	Yes, I did.	Yes.
	.....do.....	.....do.....	Theresa Jackson....	1a–2a.....	...do....	Yes.	Yes.	.....	.....	Yes.....	Yes.....	Yes.
	Harrisburg.....	Camp Curtin.....	L. LaVene Grove...	6–7.....	In some respects easier, others harder.	.....	.....	.....	.....	Yes.....	Yes.....	In majority of cases.
	.....do.....	Sixth grade.....	Elisabeth A. Dum..	...do	Easier...	Yes.	Yes.	Planning, giving commands, etc.	One-tenth.....	Yes.....	In most cases, yes.	Generally; yes.
	.....do.....	Ninth grade.....	Carrie L. Faries....	8–9.....	...do....	Yes.	Yes.	Yes.....	At least one month.	Yes.....	Yes.....	In most instances.
	.....do.....	(?).....	Ruth K. Wells.....	2–5.....	...do	Yes.	Yes.	Saves repeated explanations.	15–30 minutes a day, 2d year.	Yes.....	Yes.....	If teacher keeps her dignity, yes.
Utah ..	Logan.....	Woodruff.....	Ethel Hill.....	3–4, at times 5–6.	It requires more preparation.	Yes.	Yes.	In assigning lessons.	30–40 minutes a day.	Yes.....	Yes.....	Yes.
Va....	Portsmouth.....	High Street School.	Mrs. L. M. Weaver..	4a, through 4 cycles.	Easier...	Yes.	Yes.	Yes.....	.....	Yes.....	Yes.....	Yes.
	Richmond.....	Arents.....	M. R. Briggs.....	3a–4a.....	...do....	Yes.	Yes.	.....	A month at least each half session.	Yes.....	Yes.....	Yes.
	.....	.....do.....	Carrie Swetman.....	1a–1b.....	...do....	Yes.	Yes.	.....	.....	Yes.....	Yes.....	Yes.
	.....do.....	.....do.....	Mary Tucker.....	1a–1b (?)...	...do....	Yes.	Yes.	.....	.....	Yes.....	Yes.....	Yes.
	.....do.....	Bainbridge.....	Evelyn Fitzgerald..	2a–2b.....	...do....	Yes.	Yes.	.....	.....	Yes.....	.....	Yes.
	.....do.....	.....do.....	Mildred Potts.....	3b–4a.....	...do....	Yes.	Yes.	Yes.....	1 month.....	Yes.....	Yes.....	Yes.
	.....do.....	.....do.....	Clara O'Brien.....	1a–1b.....	...do....	Yes.	Yes.	.....	.....	Yes.....	Yes.....	Yes.
	.....do.....	.....do.....	Katherine K. Scott .	2 terms of third-year.	...do....	Yes.	Yes.	Manual work; yes.	1 month.....	Yes.....	Yes.....	Yes.
	.....do.....	Baker.....	W. L. Brock.....	1b–2a.....	...do	Yes.	Yes.	Yes.....	About 2 hours per week.	Yes.....	Yes.....	Yes.
	.....do.....	.....do.....	A. V. Randolph.....	1a–1b.....	...do	Yes.	Yes.	Knowing where to put stress.	.....do.....	Yes.....	Yes.....	Yes.
	.....do.....	.....do.....	S. B. Robinson.....	2a–2b.....	...do	Yes.	Yes.	Less time to discipline; yes.	30–40 minutes per day.	Yes.....	Yes.....	Yes.
	.....do.....	Bellevue.....	M. C. Cocke.....	.....do....	...do	Yes.	Yes.	.....	3 or 4 weeks ..	Yes.....	Yes.....	Yes.
	.....do.....	.....do.....	E. Cleve Gary.....	1a–1b.....	...do	Yes.	Yes.	.....	.....	Yes.....	Yes.....	Yes.
	.....do.....	.....do.....	E. Hartung.....	2a–2b.....	...do	Yes.	Yes.	.....	About 1 month	Yes.....	Yes.....	Yes.
	.....do.....	.....do.....	E. N. Jamison.....	1a–1b.....	...do	Yes.	Yes.	.....	.....	Yes.....	Yes.....	Yes.
	.....do.....	.....do.....	Attie Lee Lynn.....	.....do....	...do	Yes.	Yes.	Less friction [1]...	.....	Yes.....	Yes.....	Yes.
	.....do.....	.....do.....	N. M. Mondy.....	5a–5b.....	...do	Yes.	Yes.	.....	.....	Yes.....	Yes.....	Yes.
	.....do.....	.....do.....	M. L. Mondy.....	3a–3b.....	...do	Yes.	Yes.	.....	About 1 month	Yes.....	Yes.....	.....
	.....do.....	Cary.....	Fannie Powell.....	4a–4b; special now.	Very much easier.	Yes.	Yes.	Yes.....	.....	Think so..	Yes.....	Yes, indeed.

[1] Teacher and pupils with each other.

TABLE 2.—*Advancement of teacher with the class; replies from teachers* PART II Continued.

State.	Town or city.	School.	Teacher.	Through what grades or cycles now?	Make school work harder or easier?	Save time in classroom?		Save time		More intimate acquaintance makes it easier		
						Your time?	Pupils' time?	In other ways?	What per cent?	(a) To visit homes?	(b) To win affections?	(c) To get class to discipline?
Va.....	Richmond.....	Cary.....	Irene E. Walton.....	Third year.	Easier.	Yes.	Yes.	. . . . .	. . . . .	Yes..	Yes	Yes
	.....do.....	Chimborazo.....	Mattie M. Points.....	3a-3b....	...do....	Yes.	Yes.	Presentation of subject, yes.	.....	Yes...	Yes .	Yes
	.....do.....	.....do.....	Alice Ratcliffe.....	4a, 4b, 5a	.do..	Yes.	Yes	. . . . .	. . . . .	Yes .	Yes .	
	.....do.....	.....do.....	H. Shackelford.....	3a-3b....	...do .	Yes	Yes	Yes; methods of preparation.	.	Yes	Yes	Yes
	.....do.....	Elba.....	Mary V. Hall.....	...do . .	Much easier in 7b.	Yes.	Yes.	. . . .	....	Yes .	Yes .. .	Yes
	.....do.....	.....do.....	E. T. James.....	4a-4b ...	Easier ..	Yes.	Yes	Yes...	I do not know	Yes . .	Yes . .	Yes
	.....do.....	.....do.....	Sallie L. Russell.....	5a-5b....	...do ...	Yes.	Yes.	Yes; especially in A.	. . . .	Yes... ..	Yes . .	Yes
	.....do.....	Fairmont.....	F. L. Christian.....	...do....	I think so	Yes.	Yes	. . . . .	. . . . .	Yes. . .		Yes
	.....do.....	.....do.....	D. C. Garrison.....	2a-2b....	Easier	Yes.	Yes.	. . . .	. . . . .	Yes .. .	Yes ..	Yes
	.....do.....	.....do.....	Mary G. Hargrove.....	. . . . .	.do .	No .	.	Yes, knowing child's home.	. . . .	No ..	Yes .. .	Yes
	.....do.....	.....do.....	Lenore B. Kolbe.....	3a-3b....	...do	Yes.	Yes.	. . . . .	. . . . .	Yes...	Yes... ..	Yes
	.....do.....	Fox.....	Rebecca Bowman.....	2a 2b....	More preparation; easier in class room.	Yes.	Yes.	Yes... . .	....	Yes... ..	Yes ..	Yes
	.....do.....	.....do.....	J. N. Walsh.....	Sixth.....	. . . . .	Yes.	Yes.	(1)	. . . . .	Yes.. ..	Yes... ..	Yes
	.....do.....	Ginter Park.....	Ola Lee Abbitt.....	7a-7b....	Easier ..	Yes.	Yes.	In home work assignment.	½ hour daily.	Certainly..	Yes... ..	Yes
	.....do.....	Jackson.....	Mary B. Chappell.....	1a-1b....	Harder .	No..	Yes	. . . . .	. . . . .	Yes... ..	Yes	Yes
	.....do.....	.....do.....	Lilian G. Cook.....	2a-2b; 1a-1b.	...do .	No..	Yes.	Yes	. . . .	Yes... ..	.....	
	.....do.....	Mason.....	Mamie L. Daggett	3a-3b....	Easier ..	Yes.	Yes	More system....	10 minutes on each subject.	Yes... ..	Yes... ..	Yes
	.....do.....	Navy Hill.....	H. B. Robinson.....	2b-3a; 4a-4b.	...do ...	Yes.	Yes.	. . . . .	. . . . .	Yes... ..	Yes... ..	Yes
	.....do.....	.....do.....	A. H. Tilghman.....	1a-1b....	.do .	Yes.	Yes	. . . . .	. . . . .	Yes.... ..	Yes... ..	Yes
	.....do.....	.....do.....	Margaret L. Tinsley...	3a-3b; 3b-4a; 4a-4b.	.do	Yes.	Yes.	Yes....	. . . . .	Yes.... ..	Yes... ..	Yes

do	do	Fannie M. Williams	5b–6a						No	Yes	Yes.
do	Nicholson	Virginia Baker	do	Easier	Yes.	Yes.			Yes	Yes	No.
do	do	E. M. Boyle	4b–5a	do	Yes.	Yes.		Not easy to estimate.	No	Yes	No.
do	do	P. Chadick	do	Harder for teacher; easier for pupil.					Yes	Yes	No.
do	do	N. F. Hall	3–4	Easier	Yes.	Yes.			Yes	Yes	Yes.
do	do	Eva B. Howle	2b–3a–3b	Harder	Yes.	Yes.			Yes	Yes	Yes.
do	do	Elizabeth Lindsey	5b–6a–6b	Easier	Yes.	Yes.			Yes	Yes	Yes.
do	do	F. B. Norfleet	2b–3a	do	Yes.	Yes.			Yes	Yes	Yes.
do	do	Battie L. Puller	do	do	Yes.	Yes.	Teachers and pupils out of school.	One-tenth	Yes	Yes	Yes.
do	do	Lillie Shepperson	1a–1b	do	Yes.	Yes.			Yes	Yes	Yes.
do	Powhatan	Inez L. Clary	5b–6a	do					Yes	Yes	
do	do	Bessie E. Sampson	do	do					Yes	Yes	Yes.
do	do	Bessie Wells	4–5	do	Yes.	Yes.	No	1 month	Yes	Yes	Yes and no.
do	do	Ida Woodward	5a–5b						No		No and yes.
do	Smith	Mary Dickerson	1a–1b	Much easier.	Yes.	Yes.	Could teach ahead of program.	4½ months	Much easier.	Yes	Yes.
do	do	Sarah A. Forbes	2a–2b	Easier				Saved time 2d term.	Yes	Yes	Yes.
do	do	E. L. Puller	3a–3b	do	Yes.	Yes.	No	2 weeks	Yes	No	Yes.
do	Springfield	J. H. Halloran	do	do	Yes.	Yes.		See remarks.	See remarks.	Yes	Yes.
do	do	R. Estelle Shackelford	6a–6b; 7a 7b.	do	Yes.	Yes.	In home work	Can not say	Yes	Yes; decidedly.	Reduced question to minimum.

[1] You can thus promote where you would not send to other teachers.

TABLE 2. *Advancement of teacher with the class; replies from teachers* PART III.

State.	Town or city.	School.	Teacher.	Was your attention thus occupied with subject or with pupil?	Plan makes changes in relative value of work in each grade?	Master to teacher almost points that need special emphasis?	To approve plan to be followed by teachers?	Possible to keep complete records of individual traits? (a) Was your normal plan pursued?	(b) Was the enjoyment of lessons less?	(c) Was there more or less difficulty in discipline?	Known to teachers who have failed with plan?	How account for their failure?
Fla...	Tampa.....	Hyde Park.....	Fannie Cumming.	.....	Most undoubtedly	. . .	Yes . .	Yes..			Yes .	Naturally weak !
	.....do.....	Michigan Avenue.	Agnes Everett	More with need of individual pupil.	Yes..	Yes..	Yes, pitfalls yet	Yes.	Yes.. . .	Yes..	No	From discipline and lack of interest, I think !
	.....do.....	.....do.....	Mrs Nata Fleagle.	....	Yes..	Yes..		Yes..	Yes..	Yes..	Yes..	Not in sympathy with system !
	.....do.....	.....do.....	Maude J. Harter.	Subject, because discipline is established.	Yes..	Yes .	Yes..	Yes..	Yes..	Yes..	No . . .	(1)
	.....do.....	.....do.....	Ethel A. Morse	Both	It did.	Yes .	Yes .	Yes..	Yes....	Yes..	No	(1)
Iowa...	Cedar Falls..	Lincoln.....	Genevieve Griffith.	Pupil.....	Yes..	Yes..	Yes.. .	Yes..	Yes.....	Yes..	Yes.....	Subject matter not fully in hand; become too familiar with pupils.
Mich...	Kalamazoo..	Woodward Avenue.	Laura H. Gee.	Subject.....	Yes..	. .....	.....	Yes.....	Yes.....	Yes...	Yes.... ..	Lack of preparation. Possibly out of their sphere.
	.....do.....	Lovell Street.....	Bernice A. Perry.	.....do.....	Yes... .	Yes.....	.....	Yes [5]...	Yes [5].....	Yes [5]..	Yes.. . .	She would have failed under any system. I found 3 years long enough. Know each other a little too well after that.
	.....do.....	Lake Street.....	Blanche C. Kelts.	Pupil.....	.....	Much more so.	Yes.....	Yes.....	Yes.....	Yes...	No.....	(1).
	.....do.....	North West Street.	Edith A. Lent.	Subject.....	.....	Yes; broader view.	.....	.....	Yes [4].....	Yes [4]..	.....	(1).
	Shelby.....	Public School.....	Florence Wylie.	With subject for sake of pupils.	Yes.....	Yes.....	.....	.....	Yes.....	Yes...	No.....	(1).
Minn...	Minneapolis.	Simmons.....	Jane S. Miller.	Pupil.....	Most decidedly.	Yes.....	.....	No [5].....	.....	.....	No.....	(1).
Mont...	Bozeman....	Hawthorne.....	Emma Sparling.	.....do.....	Yes.....	Yes.....	Yes.....	.....	Yes [4].....	Yes [4]..	No; but I can see how a teacher might.	(1).

	.....do.....	Irving.....	Alice Roy.....	Both.....	Yes.....	Yes.....	Yes; to a certain extent.	Yes.....	Yes.....	Yes...	No.....	(1).
N. J....	Bloomfield..	No. 4 Center.....	Dora E. Adams.	Both, subject mostly and pupils perceptiveness.	Yes.....	Yes.....	Yes.....	.....	Yes.....	Yes...	.....	
	Montclair...	Cedar Avenue.....	L. Elaine Bordwin.	For individual pupil.	Yes.....	Yes.....	Not more than before.	No.....	Yes.....	.....	No.....	
	.....do.....	Hillside.....	Alice E. Chandler.	My interest is always for pupil. More time for subject.	Yes.....	Yes.....	Yes.....	No; children too young.	.....	.....	No.....	(1).
	.....do.....	Watchung.....	Edna H. Jones	.....	Yes.....	.....	.....	Yes.....	Yes.....	.....	No.....	(1).
	.....do.....	Maple Avenue.....	Alfreda M. Miller.	Subject.....	Yes; much easier.	Yes.....	Very much better.	Yes.....	Yes.....	Yes...	No.....	(1).
	.....do.....	.....do.....	B. H. Wetherby.	.....do.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	(1).
N. Y....	Syracuse....	Croton.....	Helen Curtin..	Both.....	Very much.	Very much.	Almost fully.	Yes; to advise him.	Yes; chance to discover weak to strong points.	Yes...	Yes; a few..	Would have failed under any plan. Have seen no good teacher fail.[2]
	.....do.....	.....do.....	Tracy H. Lowe.	Subject, as pupil was used to my way of teaching.	Yes.....	Yes.....	Yes.....	No; pupils too young.	Yes; decidedly.	Yes...	No; all I know approve plan.	(1).
	.....do.....	Prescott.....	Matilda Miller.	Subject.....	Yes, by all means.	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	(1).
	.....do.....	.....do.....	M. E. Whan..	If you know pupils attention is on subject.	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	.....	(1).
N. C....	Morganton..	Graded School....	Mrs. W. R. Marbut.	Knowing children's needs could teach subject more effectively.	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	(1).
	Newbern....	.....do.....	Mollie H. Heath.	More time to teach the pupil.	I think so.	Yes.....	Yes.....	Yes[3].....	.....	.....	No.....	(1).
	.....do.....	Newbern City School.	Eleanor E. Marshall.	How to present subject to each pupil.	Yes.....	Yes.....	Yes.....	.....	Yes.....	Yes...	No.....	(1).

[1] See letter.
[2] I have not tried this in systematic way but have kept a mental record.
[3] Though written records not kept.
[4] Not a written though a conscious record.
[5] Have not kept such records.
[6] Did not keep records. Yes on playground.

TABLE 2.—*Advancement of teacher with the class; replies from teachers.* PART III—Continued.

State.	Town or city.	School.	Teacher.	Was your attention thus engaged with subject or with pupil?	Plan make clearer relative value of work in each grade?	Easier to understand points that need special emphasis?	To appreciate better difficulties of fellow teachers?	Possible to keep systematic records of individual traits? (a) For home purposes?	(b) For development of character?	(c) For more active discipline?	Known teachers who have failed with plan?	How account for their failure?
Okla...	McAlester...	Second Ward.....	Mary White..	Pupil.....	Gives teacher a much broader view of whole course.		No	Yes			No	
	Tulsa.....	River View.....	Mrs. Leslie Fuller.	Entirely with subject.	Very much so.		Yes ...	Yes	Yes	In most cases done away with discipline.	No	(*)
	.....do.....	.....do.....	Gail D. Swarts.	Pupil...	.do	Very much so.	Yes	No, grade too low.	Yes	Yes	No, but have heard of them out of touch with their pupils	(*)
Pa.....	Duryea.....	Washington.....	Nellie Heath..	Subject.....	Yes...	Yes	Yes		Yes ..	Yes	No	(*)
	.....do.....	.....do.....	Della Murphy.	.do.....	Clearer and easier.	Yes. ...					No	(*)
	.....do.....	.....do.....	Theresa Jackson.	..do.....	Yes...			Very little.	Yes ..	Yes	No	(*)
	Harrisburg..	Camp Curtin.....	L. LaVerne Grove.	With pupil, most necessarily.	Yes...	Yes.....	Yes.....	Yes. .	Yes ..	Yes ..	No	(*)
	.....do.....	Sixth Grade.....	Elizabeth A. Dum.	Pupil...	Yes...	Yes.....	Yes.....	Yes...	Yes. .	Yes .		(*)
	.....do.....	Ninth Grade.....	Carrie L. Faries	Subject.....	....		Yes. ...	Yes...	Yes	Not at ways, but in many cases.	No	
	.....do.....	.....	Ruth K. Wells	Pupil.....	Yes	Yes	Yes ...	Yes...	Yes	Yes	No	(*)
Utah...	Logan.....	Woodruff.....	Ethel Hill.....	..do.....	Yes. .	Yes ...	Yes.. ..	Yes...	Yes	Yes .	No	(*)

Va.....	Portsmouth.	High Street School	Mrs. L. M. Weaver.	.....do.....	Yes.....	Yes.....	Yes.....	.....	.....	.....	Yes.....	Lack of interest.[1]
	Richmond..	Arents.....	M. R. Briggs..	.....do.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	.....	
	.....do.....	.....do.....	Carrie Swetman.	Gives more time to subject.	Yes.....	Yes.....	Yes.....	.....	Yes.....	.....	.....	
	.....do.....	.....do.....	Mary Tucker..	Pupil.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	
	.....do.....	Bainbridge.....	Evelyn Fitzgerald.	.....	Yes.....	Yes.....	.....	Yes.....	Yes.....	Yes...	.....	
	.....do.....	.....do.....	Mildred Potts.	Pupil.....	Yes.....	Yes.....	Yes.....	.....	Yes.....	Yes...	.....	
	.....do.....	.....do.....	Clara O'Brien.	.....do.....	Yes.....	Yes.....	Yes.....	.....	Yes.....	Yes...	.....	
	.....do.....	.....do.....	Katherine K. Scott.	Pupil mostly....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	.....	
	.....do.....	Baker.....	W. L. Brock..	Subject.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	([2]).
	.....do.....	.....do.....	A. V. Randolph	.....do.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	([2]).
	.....do.....	.....do.....	S. B. Robinson.	.....do.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	([2]).
	.....do.....	Bellevue.....	M. C. Cocke...	.....do.....	Yes.....	Yes.....	Yes.....	.....	.....	.....	.....	
	.....do.....	.....do.....	E. Cleve Gary.	.....do.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	
	.....do.....	.....do.....	E. Hartung...	.....do.....	Yes.....	Yes.....	Yes.....	.....	Yes.....	Yes...	No.....	
	.....do.....	.....do.....	E. N. Jamison.	.....do.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	
	.....do.....	.....do.....	Attie Lee Lynn	.....do.....	Yes.....	Yes.....	Yes.....	.....	.....	.....	No.....	
	.....do.....	.....do.....	N. M. Mondy..	.....do.....	Yes.....	Yes.....	.....	.....	.....	.....	.....	
	.....do.....	.....do.....	M. L. Mondy..	.....do.....	Yes.....	Yes.....	.....	.....	.....	.....	.....	
	.....do.....	Cary.....	Fannie Powell	.....do.....	Yes.....	Yes.....	I think so.	Yes.....	Yes.....	Yes...	No.....	
	.....do.....	.....do.....	Irene E. Walton	.....do.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	([2]).
	.....do.....	Chimborazo.....	Mattie M. Points.	.....do.....	Yes.....	Yes.....	Yes.....	Occasionally.	Yes.....	Yes...	Yes.....	Because of poor discipline.
	.....do.....	.....do.....	Alice Ratcliffe	.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	
	.....do.....	.....do.....	H. Shackelford	Subject.....	Yes.....	Yes.....	Yes.....	Occasionally.	Yes.....	Yes...	Yes, in one case.	Lax discipline.[3]
	.....do.....	Elba.....	Mary V. Hall..	Adjusting subjects to individual needs.	Yes.....	Yes.....	Yes.....	.....	Yes.....	Yes...	No.....	
	.....do.....	.....do.....	E. T. James...	Subject.....	Yes.....	Yes.....	I think so.	No, pupils were too young.	Yes.....	Yes...	No.....	
	.....do.....	.....do.....	Sallie L. Russell.	Fitting subject to pupils' needs.	Yes.....	Yes.....	Yes.....	Yes[4].....	Yes.....	Yes...	No.....	
	.....do.....	Fairmont.....	F. L. Christian.	With both, but more with pupil.	Yes	Yes.....	Yes.....	We have never tried this.	.....	.....	No.....	([2]).

[1] Easier to appeal to parents for cooperation.
[2] Have known several who objected to it. I don't see how they could make a failure of it if successful in their present grade and were qualified to go on to the next.
[3] See letter.
[4] But have heard of them "Out of tune with their pupils."
[5] Have never kept systematic records.

TABLE 2.—*Advancement of teacher with the class; replies from teachers*—PART III—Continued.

State	Town or city.	School.	Teacher.	Was your attention thus engaged with subject or with pupil?	Plan make clearer relative value of work in each grade?	Easier to understand points that need special emphasis?	To appreciate better difficulties of fellow teachers?	Possible to keep systematic records of individual traits?			Known teachers who have failed with plan?	How account for their failures?
								(a) For vocational purposes?	(b) For development of character?	(c) For more scientific discipline?		
Va.....	Richmond..	Fairmont.....	D. C. Garrison	Subject.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	
	...do.....	.....do.....	Mary G. Hargrove.	Pupil.....	Yes.....	Yes.....	Yes.....	(1).....	.....	.....	No.....	
	...do.....	.....do.....	Lenore P. Kolbe.	Subject.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	
	...do.....	Fox.....	Rebecca Bowman.	Pupil.....	Yes.....	Yes.....	Yes.....	An excellent opportunity outdid it.	Yes.....	Yes...	No.....	
	...do.....	.....do.....	J. N. Walsh...	.....do.....	Yes, certainly.	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	.....	(2).
	...do.....	Ginter Park.....	Ola Lee Abbitt.	Methods of presenting subjects win attention.	Yes.....	Yes.....	Certainly	Yes.....	Yes.....	Yes...	No.....	(2).
	...do.....	Jackson.....	Mary P. Chappell.	Knowing pupil could give attention to subject.	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	
	...do.....	.....do.....	Lilian G. Cook	.....do.....	Yes, indeed.	Yes.....	Yes.....	Yes.....	Certainly..	Yes...	.....	(2).
	...do.....	Mason.....	Mamie L. Daggett.	Subject.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	(2).
	...do.....	Navy Hill.....	H. B. Robinson.	.....do.....	Yes.....	Yes.....	Yes.....	Yes, in 4a and 4b.	Yes.....	Yes...	No.....	
	...do.....	.....do.....	A. H. Tilghman.	.....do.....	Yes.....	Yes.....	Yes.....	No, pupils too young.	.....	.....	No.....	

...do.....	.....do.....	Margaret L. Tinsley.	Teacher has more time to spend on subject.	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	(2).
...do.....	.....do.....	Fannie M. Williams.	With both.....	Yes.....	Yes.....	Yes.....	.....	Yes.....	Yes...	No.....	(2).
...do.....	Nicholson.....	Virginia Baker	Pupil.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	
...do.....	.....do.....	E. M. Boyle...	.....do.....	.....	Decidedly clearer.	.....	No.....	Yes.....	Yes...	No.....	(2).
...do.....	.....do.....	P. Chadick....	.....do.....	Yes.....	Yes.....	Yes.....	Yes.....	.....	Yes...	No.....	
...do.....	.....do.....	N. F. Hall....	.....do.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	
...do.....	.....do.....	Eva B. Howle.	.....do.....	Yes.....	Yes.....	Yes.....	.....	Yes.....	Yes...	No.....	
...do.....	.....do.....	Elizabeth Lindsey.	Subject.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	
...do.....	.....do.....	F. B. Norfleet.	Pupil.....	Yes.....	Yes.....	Yes.....	.....	.....	.....	.....	
...do.....	.....do.....	Pattie L. Puller.	.....do.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	Yes.....	I believe the better some teachers know the pupils the less capable they are of controlling them.[2]
...do.....	.....do.....	Lillie Shepperson.	.....do.....	Yes.....	Yes.....	Yes.....	I don't know.	.....	.....	.....	
...do.....	Powhatan.....	Inez L. Clary..	Subject.....	Yes.....	Yes.....	Yes.....	.....	.....	.....	No.....	
...do.....	.....do.....	Bessie E. Sampson.	.....do.....	Yes.....	Yes.....	Yes.....	.....	.....	.....	No.....	
...do.....	.....do.....	Bessie Wells..	To both.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No.....	
...do.....	.....do.....	Ida Woodward	Subject.....	.....	.....	.....	.....	.....	.....	No.....	
...do.....	Smith.....	Mary Dickerson.	Pupil.....	Much clearer.	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	Yes.....	Lack of interest; lack of preparation; not visiting homes.[2]
...do.....	.....do.....	Sarah A. Forbes	.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	.....	
...do.....	.....do.....	E. L. Puller...	Pupil.....	Yes.....	Yes.....	Yes.....	No.....	Yes.....	No....	No.....	
...do.....	Springfield.....	J. H. Halloran.	Subject.....	Yes.....	Yes.....	Most assuredly.	(2).....	.....	.....	No.....	
...do.....	.....do.....	R. Estelle Shackelford.	More time to presentation and drill, discipline being eliminated.	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes...	No, experience in department work only with experienced teaching.	

[1] It is possible to keep these records, but have not tried it.

[2] See letter.

[illegible]

[illegible]	[illegible]	Number of teachers.	Number of schools.
[illegible]	[illegible]	3	1
[illegible]	[illegible]	1	1
[illegible]	[illegible]	4	1
[illegible]	[illegible]	1	
[illegible]	[illegible]	1	1
[illegible]	[illegible]	2	1
[illegible]	[illegible]	2	4
[illegible]	[illegible]	3	
[illegible]	[illegible]	4	1
[illegible]	[illegible]	1	1
[illegible]	[illegible]	2	
[illegible]	[illegible]	1	1
[illegible]	[illegible]	2	
[illegible]	[illegible]	1	1
[illegible]	[illegible]	4	
[illegible]	[illegible]	1	1
[illegible]	[illegible]	1	1
[illegible]	[illegible]	58	

[illegible]

[illegible] *[illegible] training and experience. Are you a graduate of a* [illegible] *normal school?* *Where? When?*

[illegible] [illegible] [illegible] [

another, "In some respects easier, others harder"; a third says, "It requires more preparation." Eighty-one, i. e., 84 per cent, declare that it makes the work easier; three state positively that it makes the work "much easier"; while two make qualified statements: "I think it will be easier on second round"; and "more preparation, easier in class room."

Did it save your time in the classroom? The pupils' time?

With regard to saving of teacher's time in classroom, six did not reply; one expressed a doubt; eighty-six, or nearly 90 per cent, said "yes" and only three replied "no."

Two were in doubt as to whether it caused a saving of time for the pupil. One said "a little"; eighty-six said "yes"; while seven did not reply.

Does this plan save school time in other ways?

Forty-two did not reply to this question; two said "no"; one expressed doubt; while fifty-one said "yes." *In what ways?* "In organizing and planning"; "in preparing and correcting work"; "in establishing routine"; "in preparation of lessons"; "in the manual work;" "in teaching pupils after school." *How much time is saved altogether?* Forty-six made reply; seven said they could not estimate; "very much," said one. Others estimated as follows: Ten minutes daily, ten minutes per subject, fifteen to thirty minutes a day, thirty to forty minutes a day, one-half hour daily, two hours a week, three to four weeks, about one month, six to eight weeks, one-half year, one-fourth of the time, one-third of the time, one-half of the time.

But it is to be noted that the more experienced teachers, and especially those with larger cycles, make the higher estimates.

Did the more intimate acquaintance with the pupils make it easier to visit their homes?

Three do not answer; five say "no; too much work to visit homes"; "not necessarily," says another; "sometimes," says a third; "somewhat," another; "always easy," says an optimist; "easier but less necessary," another; "no difference," "yes, more time for it;" "much easier;" "yes, pupils beg it"; eighty-two say positively "yes."

Did you find it easier thus to win the affections of the pupils?

Five do not reply; three say "no"; "in most cases," one; "already won," another; "pupils here affectionate anyway," a third; eighty-five replied "yes."

Did you find it easier to exercise discipline?

Five do not answer; one says "possibly"; another, "not always"; "yes, if the teacher keeps her dignity," says a third; "yes" and "no," say two; "yes" say eighty-five, some of whom answer it very positively.

In this way was your attention engaged rather with the subject or with the pupil?

Six do not reply; seven say "both"; forty-six say "subject"; and thirty-seven say "pupil."

This question, necessarily somewhat inexplicit in the questionnaire, clearly puzzled the teachers. Those who answer "subject" seem to have had in mind the thought that discipline being minimized and the qualities of the children being better understood, more attention could be given to adapting the subject matter to the individual needs of the pupils. This is indicated by such expressions as "with the subject, as discipline is established"; "with subject for sake of pupils;" "the subject, as the pupil was used to my methods of teaching;" "knowing children's needs, could teach subject more effectively"; "if you know the pupil, attention is on the subject." There is thus more unanimity than would appear at first sight. It would appear, too, that those who answered "both" have substantially the same thought.

Did this system make clearer the relative value of the work in each grade and make it easier to understand what points need special emphasis in each grade?

Did you thus learn to appreciate better the difficulties of your fellow teachers?

The replies to these three questions are almost unanimously in the affirmative and the more experienced teachers especially emphasize the "yes."

Did you in this way find it possible to keep systematic records of the individual traits of your pupils?

(*a*) *For vocational purposes?*

Twenty-three do not answer; thirteen reply in the negative, but they explain that their pupils are too young to consider the subject of vocations (as if, indeed, the disposition shown thus early would not be valuable in the interpretation of personal qualities later); sixty say that the method was useful to them, even when written records were not kept.

(*b*) *For understanding and development of character?*

Fourteen do not reply and four say "no"; but seventy-eight, or 81 per cent, say "yes." Those who say "no" admit that it was simply a case of missing an opportunity.

(*c*) *And, so, for a more scientific method of dealing with unruly pupils?*

Nineteen do not answer; three answer "no" and seventy-four, i. e., 77 per cent, of all write "yes"; of the three giving a negative reply, one says "it is possible to do this, but I have not tried it"; the reply of another is, "I don't know"; and only one gives a positive "no."

Have you known teachers who have failed with the plan of advancement with pupils?

Eleven say "yes"; sixty-seven say "no"; eighteen do not reply.

How do you account for their failures?

Among the reasons assigned for failure of teachers with this plan are these: "Naturally weak;" "poor discipline;" "lack of interest;" "not in sympathy with system;" "subject matter not fully in hand;" "too familiar with the pupils;" "lack of preparation;" "positively out of their sphere;" "would have failed under any plan;" "teacher and pupil knew each other too well;" "out of tune with their pupils;" "advancement through too many grades;" "the better some teachers know their pupils the less capable they are of controlling them."

ADDITIONAL REMARKS BY TEACHERS WHO HAVE TRIED THE ADVANCEMENT PLAN.

Tampa, Fla., Fannie Cumming, teacher, Hyde Park School.—I like the system very much. Of course it is much harder for the inexperienced teacher and is a failure for the weak one. The actual teaching is easier, for knowing the needs of the child already so much time is saved. And to succeed we must know the individual child. It makes more work for the teacher outside the classroom, collecting new materials, for one can not use much of the previous year's collection. But it saves the teacher from getting into that deadly route, which is so easily and unknowingly done. One can be so much more enthusiastic when teaching new material. I like very much the home atmosphere it creates. The teacher knowing the children, the children knowing each other—just one large family all working for the good of all. The teacher knows what has been actually taught and the possibilites of the child. Knowing this, greater advancement is possible than when children have a different teacher every year. Sometimes I think it is harder than we think for little children to adjust themselves to school environment. Teachers are so different and hardly has a child become accustomed to one teacher before he is thrust on to the next. The responsibility is greater also. Think of being responsible for so many years of a child's life. It makes one take teaching more seriously.

Tampa, Fla., Agnes Everett, teacher, Michigan Avenue School.—It affords me great pleasure in answering the questions you have presented to teachers who have been promoted with their grade.

I have delayed making a reply, in order that I might see how the pupils who had been with me three and one-half years compared with other pupils who had been taught by a different teacher each. I waited to make this test because the pupils from the different schools were sent to the high school in February. All are going under the same conditions and taking up work with the same teachers.

I am delighted to tell you that they stand with the best in the class and in several instances ahead.

The teachers and superintendent state that it is one of the finest classes that has ever gone into the high school.

For this method to be successful it is very necessary that the teacher be of a strong personal character, an original and enthusiastic teacher. She must be a firm, kind, but strong disciplinarian. She must have a disposition and character worthy of imitation, for her pupils adopt many of her ways and become molded into her ideas.

She must be firm, for as the pupils grow older they understand her better and naturally feel that she should allow them more freedom on account of their long association.

The only criticism I have to bring against the method is that the attachment between pupil and teacher, and teacher and pupil becomes so strong, that it makes the separation so very hard and it also makes it hard for the pupils to adapt themselves to the ways and methods of other teachers.

Even though I see the weaknesses of the plan I most heartily approve of it (with good teachers).

Tampa, Fla., Mrs. Neta Fleagle, teacher, Michigan Avenue School.—The method of promoting teacher with the class (as in my work, the primary) forces the teacher to study and become familiar with all phases of primary work; instead of knowing how to teach only first or third grade, she must know how to teach first, second, and third grades, and knowing this makes her broader and in all ways a better teacher.

The teacher, knowing that she alone is responsible for what degree of proficiency the class may possess when entering intermediate work, will give her best always to her class, and the habit of blaming the poor work of a class to the teacher of the lower grade is eliminated to a certain degree.

The list of promotions is large if the teacher has the class for more than one session. Where she would hesitate to send a pupil weak in some one subject to another teacher higher up for fear of criticism, or of having the child sent back to her, she would not hesitate to promote the child to her own grade, as she would think she could help him more than another, knowing him better. The work so far in Tampa has been a decided success.

Tampa, Fla., Maude J. Harter, teacher, Michigan Avenue School.—I am frank in saying that I did not approve of it at all in the beginning, but I want, most of all, to be a growing teacher, so I tried honestly to do the best I could in advancing with my grade. I watched every point that came up both for and against, and without one bit of prejudice. I think now that if the teacher is strong enough to take a class through one grade she can do better work by keeping with the same pupils. In fact, now that I have tried it, I prefer it.

Tampa, Fla., Ethel A. Morse, teacher, Michigan Avenue School.—My experience has been that in beginning the second year with the same class the pupils lost no time in learning the methods and requirements of the teacher, the teacher no time in learning the characteristics, idiosyncrasies, capacities, and deficiencies of the pupils. The work was a real continuation of that of the previous year, the teacher knowing exactly what review and drill were needed, and not wasting time on unnecessary repetition. I find my familiarity with the textbooks used previously by pupils, as well as with their stock of knowledge very useful in presenting new matter. Moreover, if the teacher stands "in loco parentis," is it not rather hard on the children to accept a new parent every year?

Tampa, Fla., Daisy Smith, teacher, Michigan Avenue School.—My more thorough acquaintance with the children has made the work very pleasant. I think a teacher takes greater pride in a class that she is with for so long and that she also feels

her responsibility more keenly and will therefore put forth her best efforts and I most heartily approve of the method.

Kalamazoo, Mich., Bernice A. Perry, teacher, Lovell Street School.—I found that advancing with my pupils was very helpful for three years, then I decided that a change would be better for them and for me, too. We knew each other altogether too well.

Kalamazoo, Mich., Blanche C. Kilts, teacher, Lake Street School.—The promotion of a teacher with her pupils is more satisfactory to me; first, in that it gives a wider range of material in which to work, hence a broader and fuller view; second, in that it enables the teacher to see the results of her expended efforts.

Kalamazoo, Mich., Edith A. Lent, teacher, North West Street School.—My experience, it seems to me, is scarcely fair to this plan. My experience has been only when going on from one class to another with pupils, never in a school where the teacher continued with pupils for more than one year's work.

However, when I have had pupils for more than one semester's work, I found that in knowing the child and in their knowing my methods, we saved much time and work. The time spent in organization, in discipline, to a great extent was eliminated. If a child is under a difficulty or is an unusual child, the teacher understands him and can deal with him understandingly and eliminate the waste of time and effort for both teacher and pupil.

Shelby, Mich., Florence Wylie, teacher, Shelby Public Schools.—In our experience with the system of promoting teachers with pupils, the chief objection came from the teachers, who disliked to return to lower grade work after having taught a higher grade. It seems to me that this difficulty might be removed if the teaching force were a more permanent body. If teachers were employed for a cycle instead of for a single year, I think it would be a desirable system.

Minneapolis, Minn., Jane S. Miller, teacher, Simmons School.—The teacher must grow and study to do this work so she can not get into the rut of doing the same thing over and over.

Bozeman, Mont., Emma Sparling, teacher, Hawthorne School.—In order for a teacher to advance with pupils she must win their love and esteem. She can best do this by being one of them, not only in schoolroom but out on the playground. The teacher then can go on each year with the children and have no difficulty with discipline, if she still retains the respect and love of pupils.

A teacher should have no difficulty with work of each new grade if she has had proper training and experience in work with all the grades. If not, she should be so interested in children as to go on with them and surmount the obstacles.

I did not go on with my class last September as I felt they needed a change. I have realized every week since school began where I have made a big mistake. I hope to have them next year.

Montclair, N. J., Alice E. Chandler, teacher, Hillside School.—Only twice have I moved ahead with my class. When I came here I taught third grade. After two years an extra teacher was needed in the fourth grade and I accepted the chance to move along. It was a joyous experience.

Last year an unusually bright class came to my lot. I soon saw that a large majority of them could work ahead faster than an ordinary class. I talked the matter over with my principal and superintendent, and they approved of my trying to accomplish three years' work in two. Of course this possibility fired the ambition of the children and they started in this September as though work was the greatest joy of their lives. They understood me and my ways and much time was saved.

I rather think that occasional promotion of teachers with pupils is a good idea, but I doubt whether I should care for it as a regular system. Many times I think that a child needs to begin all over again with somebody new. Moreover some teachers are much better adapted to one grade of work than another.

Montclair, N. J., Edna H. Jones, teacher, Watchung School.—Every pupil has saved one year and without exception they are doing well in the sixth and seventh grades, where they now are. There is some question as to whether their immaturity will prevent them from keeping up in eighth and ninth grade work though.

Montclair, N. J., Alfreda M. Miller, teacher, Maple Avenue School.—I believe a teacher might advance too far with her class. For example, a teacher who is an excellent first-grade teacher and a natural first-grade teacher would, I believe, be in very much the wrong place if she were to continue going up much beyond the fourth grade.

Some teachers seem made for primary work and some for grammar work; such teachers, I think, should be careful not to get out of their proper sphere.

Montclair, N. J., B. H. Wetherby, teacher, Maple Avenue School.—It seems to me that in cases where a teacher is particularly fitted for first-grade work she would lose by advancing to the upper grades. The same would hold true of grammar-grade teachers who may not be in sympathy with the younger children.

This system has been especially advantageous in our school as the majority of the children are foreign. To advance with them means a helpful acquaintance, for they are usually reticent and most individual. It is, therefore, a great saving of time, and means a better understanding of each child.

Syracuse, N. Y., Helen Curtin, teacher, Croton School.—Many times within the last few weeks I have heard teachers say many pleasant things about being able to go on with their grades. It is very necessary that the teacher be pleased with her work.

This plan gives the teacher an opportunity to know the child. She can not deal with him intelligently unless she knows how to approach him.

The child is given an opportunity to know the teacher. Unhappiness in teaching, as in many other things, often results from a lack of understanding on the part of both teacher and pupil.

Much more freedom can be allowed. Children will realize that we are social beings after all and not "just school-teachers."

More guidance for their reading, and outside interests can be given.

A teacher said to me a few weeks ago at the beginning of this term, "I can not understand what it is that makes me so fond of my class this term. They are so much better than they were last term." Still they are about the same children. Now she knows them.

Syracuse, N. Y., Matilda Miller, teacher, Prescott School.—Pupils become so well acquainted with the teachers that the second term they feel free to ask questions concerning their work which they would not do the first term. In the seventh grade the individual work becomes easier, for the teacher knows just which pupils require special help along certain lines.

I am heartily in favor of this plan of promotion, for it makes both teacher and pupil happy in the work.

Syracuse, N. Y., M. E. Whan, teacher, Prescott School.—At first I did not like it, but now I would feel lost if the system were changed. Time is surely saved, and there is no question in the mind of the teacher about the ability of each pupil. She knows the unruly ones and they know where the line is over which they dare not step. They give up the idea of trying the teacher for they know her as she also knows them.

Morganton, N. C., Mrs. W. R. Marbut, teacher, Morganton Grade School.—Whenever I have entered a room full of children that were strangers to me, I have found that I lost a good deal of time in finding out the exact needs, difficulties, and characteristics of each child. Without this knowledge, I felt that I could not do my best work and might fail to really reach the child at all.

The children must become well acquainted with the teacher and her methods before they can do their best work.

An atmosphere of sympathy and understanding must be established and it takes some time to accomplish all this. Once well done, however, this understanding lasts as long as the relations of teacher and pupil continue.

Newbern, N. C., Mollie H. Heath, teacher, Newbern Graded School.—I think the plan of semiannual promotions especially good for the backward pupils, as it gives them an opportunity for promotion in four months, if they can remain with the teacher who has learned their limitations. There are advantages and disadvantages in semiannual promotions. The teacher can not be with both classes, but I think the backward pupils would suffer most if she should leave them.

Newbern, N. C., Eleanor E. Marshall, teacher, Newbern City School.—As almost all teachers are more interested and successful with children of certain ages, I think that a continuous promotion of the teacher with the pupils for a time longer than two years might prove hurtful to both pupils and teacher.

McAlester, Okla., Mary White, teacher, Second-Ward School.—With a strong teacher adapted to her work it is a most excellent plan, but with a weak teacher I think a change might be better, certainly for the children.

Tulsa, Okla., Gail D. Swartz, teacher, River View School.—I might say, if the teacher should be all that is desirable, the affection and respect which increase each semester for "his ideal" would tend to mold the child much more firmly in proper habits than should his teacher change and thus give him new phases to look at. I approve of both methods, but I'd want the teacher to be almost perfect should he have charge of children for consecutive years.

Harrisburg, Pa., L. LaVene Grove, teacher, Camp Curtin School.—Personally I feel that the method of advancing teachers with pupils is a good one providing a teacher is many sided in her teaching and does not produce a pupil who gained power in one or two subjects or whatever subjects the teacher considered most essential.

Again, from year to year the same crowd of pupils would not care to hear the same illustrations, would not enjoy the monotonous voice or peculiar mannerisms or worn-out methods of a teacher.

In other words, this method is good only when a teacher is a real teacher in every sense of the word, when she has exactly the right attitude and viewpoint of her pupils and of her subjects, when she is a well-balanced, broad-minded, progressive, young-spirited person; otherwise, if I were a parent myself, I should prefer my child to have the education in which a number of amateurs had a hand rather than one.

Harrisburg, Pa., Ruth K. Wells, teacher.—If a teacher loses dignity as she becomes more intimately acquainted with her pupils, then discipline is hard. But if, on the other hand, she has dignity, with intimate acquaintance, she has solved the problem of discipline. The child obeys not only from love of the teacher, but out of a desire to stand well in her opinion.

The attention is given to the child rather than the subject. The child and his needs become uppermost in the teacher's mind and she considers the subject as related to him.

With this system you very readily recognize difficulties of other teachers. I am thinking especially of the beginning of the year. Children forget a great deal during vacation and a teacher is so apt to blame this lack of knowledge on the former teacher. This is not so when a teacher rises with her school. She discovers to her horror that they know just as little when she herself has been the previous teacher.

When you have become intimately acquainted with a pupil, he becomes freer in his conversation with you. He speaks of his desires and likes and dislikes. These little conversations aid you in understanding the child and his motives for doing many things. With this understanding you are more able to develop his character.

By acquaintance and understanding of individual traits of each pupil, you gradually begin to punish unruly pupils according to their individual traits. When you punish

in this manner you have reduced to a scientific plan the management of unruly children.

I think the system is excellent for the teacher. There is, nevertheless, another side to it. If a teacher goes the entire course with her school, the pupil may become one-sided. I mean by this that a teacher may emphasize one branch of study, while another teacher would emphasize some other branch. A child who was placed under one and then the other would see the difference. A child who had remained under one teacher would be developed in one branch only.

There is another feature that appeals to me and which is due to the grouping of grades as is done in Harrisburg. The second grade runs into the third, the fourth into the fifth, and sixth into the seventh. It makes it possible to take a bright class of pupils through two grades in one year. I have done a great deal of this work and my ideas are formed accordingly. Last year from a class of 45, 17 skipped a grade.

Logan, Utah, Ethel Hill, teacher, Woodruff School.—Too many backward pupils might discourage a teacher.

Portsmouth, Va., Mrs. L. M. Weaver, teacher, High Street School.—During the 20 years I taught four different schools, some of my advanced pupils following me from school to school. In those schools I did not have just one or two exercises each day, but from 20 to 25 classes comprising all the studies in the curriculum from the first to the eighth grades.

Promoting teachers with pupils prevents experimenting upon pupils. It helps to avoid injustice in discipline. It prevents loss of time and opportunity. The teacher's moral influence is better felt. The teacher can set up for the pupils a reasonable and consistent standard. It gives skill in managing children.

No teacher can thoroughly become acquainted with her pupils in five months. Having the same pupils makes clearer the relative value of the work in each grade and makes it much easier to understand the weak points that need special emphasis in each grade.

Richmond, Va., S. B. Robinson, teacher, Baker School.—With the promotion-of-teacher plan the bright pupil has the advantage of being advanced into the next grade's work as far as the teacher thinks he is capable of going. The average pupil has a chance to at least complete course. The bright pupil having been taught to work independently, and with skillful guidance of the average pupil, the teacher can find more time for individual work with dull pupils. A pupil deficient on one subject but "up" on the general work of the grade may be allowed at the end of the term to pass to the next grade if he is to have same teacher in next grade.

Richmond, Va., Irene E. Walton, teacher, John B. Cary School.—Often a weak pupil who would otherwise be retarded may be advanced with the teacher because she understands his weak points and the method of dealing with him and is so enabled to give him special attention in the next grade.

Richmond, Va., Mabel Glinn, teacher, Fairmount School.—If a teacher is advanced with her pupils she is bound to find her work easier the last half-term; time is saved for both pupils and teacher by this more intimate acquaintance which can not be gained during a single half-term; the teacher is compelled to be a stronger, broader, more alert teacher by this method than by the old method which allowed four and one-half months in which she was to labor with a class and then to begin with an entirely new class for another four and one-half months of the same work.

Richmond, Va., Ola Lee Abbitt, teacher, Ginter Park School.—The system is praiseworthy in that it enables the teacher to get a better understanding of the child's strong and weak points, both mental and moral, and in so doing help the child to the best possible advantage.

On the other hand the system may prove narrowing to the child even though the teacher be of the best. The child is being governed by one individual opinion and ways of looking at every thing.

Richmond, Va., Mamie L. Daggett, teacher, George Mason School.—The children know just what and how the teacher wants them to do their work and they will go right on with the work without having the teacher to stop and tell them how to do the little every-day problems of school.

Richmond, Va., E. M. Boyle, teacher, Nicholson School.—The best feature of this work is the aid given to children who are physically defective. After they are once understood there is more sympathy and assistance rendered by the teacher who has learned to appreciate the difficulties under which they labor.

Richmond, Va., Mary Dickerson, teacher, John Smith School.—Although I wish to continue teaching 1A (6-year-old pupils) I must acknowledge that advancing with the class for one session (not more) saves time for the pupil (probably one year in the district school) and also saves time for the teacher. In visiting homes I hear the cry that I wish the teacher could go up with the class.

Richmond, Va., Sarah A. Forbes, teacher, John Smith School.—I have had pupils in my grade in the first part of the term that would not have been promoted had they been sent to another teacher, but as I was to take the class through the next grade and knew the weak points of these pupils I have carried them along and they have done excellent work.

Richmond, Va., J. H. Halloran, teacher, Springfield School.—The ability of very good students can be developed to a greater extent by this system than by any other method that has come under my observation. I do not believe in "slipping" a child over a grade unless he is an exceptionally bright one, as the skipped student usually shows weakness later on. But I do believe that if classes were so arranged that all bright or very good pupils rather, could be in the hands of one teacher in one year, she could accomplish work that would otherwise take a year and a half, and no grade be skipped.

Richmond, Va., R. Estelle Shackelford, teacher, Springfield School.—I am not familiar with plan of teacher keeping a class throughout a year only. In my own experience of handling a class through two entire years the greatest pleasure is in learning to really know the children, which I can never do in the first grade or half term. Almost all misunderstandings occur there and the friendship of parents won there means support and confidence through the rest of my dealings with that class through two years.

ADVANCEMENT OF TEACHER IN FOREIGN SCHOOLS.

It seemed best to study foreign school procedure also with reference to this plan, and a considerable body of information was obtained, for the most part through the courtesy of the State Department and its representatives in foreign countries, who, during the pressure of an unusual period have found time to give painstaking effort in behalf of this educational problem.

These foreign reports indicate that the advancement plan has been more extensively applied in foreign countries than in the United States. The opinions of many leading foreign educators are clear-cut and positive in its favor, and in the principal countries of the Old World it would appear that school authorities recognize that the plan is formed on the deepest educational principle and apply it wherever conditions permit. France is a notable exception.[1]

[1] See letter and note, p. 61.

Brief tabulation of the foreign reports.

[The "Yes" and "No" statements indicate the attitude, favorable or unfavorable, of the school authorities in regard to this plan.]

Countries.		Towns of same.	
Belgium	Yes	Brussels	Yes.
Central America:			
Costa Rica	No	San José	No.
Panama	No	Panama	No.
Salvador	Yes	San Salvador	Yes.
Denmark	Yes	Copenhagen	Yes.
France	No	Paris	No.
Germany	Yes	Hamburg	Yes.
Great Britain and colonies:			
England	Yes	Birmingham	Yes.
Do		Bradford	Yes.
Do		County Borough Halifax	Yes.
Do		Second Branch, Wakefield	No.
Do		Huddersfield	Yes.
Do		Leeds	Yes.
Do		Liverpool	Yes.
Do		London	Yes.
Do		Manchester	Yes.
Do		Nottingham	Yes.
Scotland	Yes	Edinburgh	Yes.
Do		Glasgow	Yes.
British Columbia	Yes	Victoria	Yes.
Manitoba	Yes	Winnipeg	Yes.
New Brunswick	No	Fredericton	No.
Ontario	No	Toronto	No.
Saskatchewan	Yes	Moose Jaw	Yes.
Do		Prince Albert	No.
Do		Regina	Yes.
Do		Saskatoon	Yes.
Queensland	Yes	Brisbane	Yes.
Tasmania	Yes	Hobart	Yes.
West Australia	Yes	Perth	Yes.
Greece	Yes	Athens	Yes.
Norway	Yes	Christiania	Yes.
Portugal	Yes	Lisbon	Yes.
Spain	Yes	Madrid	Yes.
Switzerland	Yes	Berne	Yes.
Do		Zurich	Yes.

Countries	22	Cities	36
Yes	17	Yes	29
No	5	No	7

Inasmuch as the above tabulation is very inadequate, and as a more minute summary would be unsatisfactory on account of the great variety in the replies, it seems best to give the letters themselves as far as they refer to this topic.

It should be stated that only a few foreign correspondents received copies of the questionnaire.

Letters Concerning the Advancement of Teacher with Class in Foreign Countries.[1]

BRUSSELS, BELGIUM.

The primary studies are divided into three grades and two years of study are necessary for each grade. When a young teacher enters into one of the schools, he is put in charge of the first year. He keeps his pupils two years, that is, during the first elementary grade. If the circumstances allow it and if he shows that he has the true qualities of a teacher and if he has been able to win over entirely his little pupils and if the results obtained justify it, he continues on with the same pupils for the next elementary grade and is their teacher for the third and fourth years. After this period of four years he starts back again at the first year and does the same thing with another group of pupils.

[1] For other letters, see Addenda, p. 79 et seq.

After eight years or more of service he is put in charge of classes of the fifth and sixth years which make up the third elementary grade.

Generally the young teacher after two years of teaching with the same pupils begins the first year again and advances with the same pupils up to the end of the fourth year. Then he starts back again and goes with the same pupils to the end of the sixth year if he is deemed sufficiently qualified.

It results often from this organization that the child does not have the same teacher during the six years of his primary studies, but generally during two years, or three or four years, but it is rare that the pupils have a different teacher each year.

This method of the advancement of the teacher with the pupil has given good results and it will be continued.

If, on the other hand, the teacher keeps the same year of studies, it is thought that teaching the same thing during 5, 6, and 10 years with the pupils of the same age, his work would become like a machine. This system exists in certain communes and it has been proved that the teacher pays no attention to the other classes, loses the true idea of teaching, and confines himself to the narrow program of his class. He does not keep himself up to date in the methods practiced in the other classes and becomes fit for no other class.

As regards the pupils also, it is very important for them that the teacher who has been able to penetrate their mind and understand them continue with them for two or three years, at least. The formation of the character of the child is a thing to which the greatest importance is attached. In order to know a child well, it is necessary to observe him thoroughly for months and it is only then that the teacher can perform a useful work from the point of view of education.

For the fourth grade, that is the seventh and eighth years of study, the system of the graded schools has been adopted, that is, each separate branch is taught by a different teacher. Each teacher teaches a few branches only, for which he is best fitted and which he prefers. He teaches them in this way with more conviction and greater success.

In the Commune of Schaerbeek, Brussels, the elementary schools are divided into four grades and the pupil remains in each grade two years under the same teacher, but on going into a new grade there is a new teacher; therefore the teachers are not promoted with the pupils.

The Echevin de l'Instruction Publique of Schaerbeek, who corresponds to the superintendent of schools, is of the opinion that the pupil should not remain under the same teacher more than two years. Each teacher has his qualities and his faults and a special talent for certain branches of education and a lack in other branches, and therefore a pupil remaining under the same teachers too long a time would not develop nearly as much either morally or intellectually.

The schools in the Commune of St. Gilles pursue the same policy.

SAN JOSÉ, COSTA RICA.

Throughout Costa Rica teachers remain at work in one grade from year to year, and are not promoted with the children. Conversation with Costa Rican educational authorities indicates that generally they do not look with favor upon the idea of assigning the same teacher to the same set of pupils for more than one year.

PANAMA.

At present teachers are appointed by the Minister of Public Instruction to fixed grades or sections, where they remain during satisfactory service, the pupils thus passing under different teachers as they are promoted from year to year.

The Minister of Foreign Affairs adds, however, that the Minister of Public Instruction is contemplating a reform in the appointment of teachers, whereby they will not be named for specific grades in the school in which they are to teach, but that it will

be left to the inspector of schools, or the director of each school, to decide upon the advantage or disadvantage of having the same teacher for the same pupils from year to year, a principle the Minister of Public Instruction considers ideal, provided certain inconveniences offered in practice can be overcome.

SAN SALVADOR.

The same professors give instruction for the three years in kindergarten and also the same professors give instruction in the three grades of the elementary schools, others in the three grades of the grammar school, and others in the two of the high school without advancing with the students.

The result which has been obtained from this system is sufficiently satisfactory so that there is no thought of modifying it.

COPENHAGEN, DENMARK.

Teachers, as far as it is possible, and whenever it can be done, are promoted with the children, so that the children, as a general rule, have the same teacher until the elementary grades are finished and until they are ready for the high school.

The policy of the public school boards in Copenhagen and all the larger cities is to continue a teacher in the elementary schools with the same pupils until they have finished the seven grades.

PARIS, FRANCE.[1]

In the French elementary schools, known as "écoles communales," the teachers are always assigned to one class, and are not moved up with the pupils. In this way, in a school of six classes, the pupils come under the supervision of six different teachers during the period that they attend school.

GERMANY.

[Information from Imperial German Embassy, Washington.]

The system of advancing teachers with their classes is—as far as it is known at this embassy—partially followed in some of the German States, so that the classes have approximately the same teachers during a certain period.

[Information from William T. Learned.]

Concerning the practice in Germany in regard to the progress of teacher and class, I understood in several schools that it was a point on which practice differed, but I found it so general that I came to the conclusion that this injunction in the official instructions had not been without effect. Of the conditions in the elementary schools I am unable to speak. My observation was, of course, confined entirely to the Gymnasia.

HAMBURG, GERMANY.

Questionnaire and answers.

1. (*a*) Do any of your teachers remain in charge of a given set of pupils for more than one year?

In higher State schools and in public schools they do, as a rule.

In country schools, with several classes of different grades, the teachers, as a rule, advance with the pupils, but sometimes only to a certain extent. In lower class

[1] While the practice of France confines itself, at least so far as écoles communales are concerned, to the retention of teachers in grades, M. Ribot, chairman of the famous French Educational Survey Commission, in his report strongly recommended the advancement plan, and cited the opinions of other distinguished Frenchmen in support of his view that the lack of this system was one of the main causes of the backward condition of education in France. On account of the present difficulty of obtaining information on educational topics from abroad, it has been found impossible to ascertain to what extent M. Ribot's view has influenced French thought and custom.

village schools the children remain two to four years under the supervision of the same teacher. A further advancing of the teacher must be restricted to a certain kind of lessons.

(*b*) If so, how many teachers?

Impossible to state; the distribution of the different lessons takes place a few weeks before the beginning of the new semester. It is placed before the supervising official, who has to give his consent.

(*c*) Through what grades, or years, do they advance with the same pupils?

In higher State schools and in public schools nearly always during the first three years. In country schools, as stated under (*a*).

2. Does the better acquaintance of the teachers with their pupils, thus secured, result in a saving of school time? How much time?

Under normal conditions it results in saving time. How much time it is difficult to state.

3. Do the teachers, from the practical knowledge of what precedes and what follows a particular grade, get a stronger grasp of the work of any given grade?

Yes; the teacher becomes more familiar with the work.

4. Does the teacher, from the deeper knowledge of the pupils thus acquired, treat her pupils more considerately, and win their affections better, than if she is confined to one grade?

Yes; this may be expected in all cases where the work is performed by zealous teachers who are performing their duties to perfection.

5. Does it tend to increase the professional zeal of the teacher and help to keep her "out of ruts"?

Yes; it increases the professional zeal.

6. Does it enable the inspector to locate more definitely the blame of poor teaching?

Yes; it enables the inspector to find out more easily where the fault lies.

7. Nothing further can be stated.

BIRMINGHAM, ENGLAND.

1. Do any of your teachers remain in charge of a given set of pupils for more than one year? If so, how many teachers? Through what grades, or years, do they advance with the same pupils?

In few cases, generally in upper grades; two or three years.

2. Does the better acquaintance of the teachers with their pupils thus secured result in a saving of school time? How much time?

No.

3. Do the teachers, from the practical knowledge of what precedes and what follows a particular grade, get a stronger grasp of the work of any given grade?

Yes.

4. Does the teacher, from the deeper knowledge of the pupils thus acquired, treat her pupils more considerately and win their affections better than if she is confined to one grade?

Yes.

5. Does it tend to increase the professional zeal of the teacher and help her "out of ruts"?

Yes.

6. Does it enable the inspector to locate more definitely the blame for poor teaching?

Yes.

7. Will you write at length about any other feature of this plan that may appeal to you?

The plan is not usually adopted in the Birmingham schools, in all of which the head teachers are allowed to organize and allocate their staff as they think fit; and to make it compulsory might be prejudicial to scholars and teachers. The staff of a school

generally includes one or more teachers who have faults of temperament or are weak in disciplinary power or in teaching ability; to keep a grade of scholars for a considerable period under the influence of such a teacher would be harmful. The plan works successfully occasionally, but everything depends upon the conditions holding at the time; what might prove beneficial one year might be disastrous the next.

BRADFORD, ENGLAND.

1. (*a*) Do any of your teachers remain in charge of a given set of pupils for more than one year?

Yes.

(*b*) If so, how many teachers?

Forty or fifty per cent.

(*c*) Through what grades, or years, do they advance with the same pupils?

(*c*1) From babies' class to second class and then to first class in infants' schools.

(*c*2) From Standards I to VII in elementary departments.

2. (*a*) Does the better acquaintance of the teachers with their pupils thus secured result in a saving of school time?

Yes, if the teacher is really first rate.

(*b*) How much time?

Can not say.

3. Do the teachers, from the practical knowledge of what precedes and what follows a particular grade, get a stronger grasp of the work of any given grade?

Yes.

4. Does the teacher, from the deeper knowledge of the pupils thus acquired, treat her pupils more considerately and win their affections better than if she is confined to one grade?

Yes, if the teacher is really first rate.

5. Does it tend to increase the professional zeal of the teacher and help to keep her "out of ruts"?

Yes, most decidedly.

6. Does it enable the inspector to locate more definitely the blame for poor teaching?

Yes, but a moderate teacher would not be allowed to remain with the same children for more than one year, for the sake of the children.

7. Will you write at length about any feature of this plan that may appeal to you?

Head teachers are beginning to adopt "Subject classification" with Standards IV to VII, but this is as yet only in the experimental stage.

HALIFAX, YORKSHIRE.

It is the policy of this education committee to leave as much freedom as possible to the head teachers in the organization of their schools. Consequently one or two may arrange for their assistants to move from class to class with the scholars, while others (and I believe the great majority) prefer to keep the assistant more or less permanently to one class. The schools are reorganized twice at least in the year; that is, children are moved forward to a higher class every half year if qualified. It frequently happens that a teacher may do quite excellent work with children of 7 or 8 years of age and be utterly incompetent to teach children of 12 or 13, and a regulation that a teacher should remain in charge of a class of children of 7 years old until they become 14 or left the school would evidently break down. In Halifax there is no inspector employed by the committee, because it is believed to be better to give the teachers liberty to take the fullest interest in their work.

WAKEFIELD.

These questions hardly apply to secondary education as organized in my committee's area, since it is almost invariably the practice for an assistant master or mistress

to be responsible for a subject or group of subjects in more than one or two classes and often throughout the school. The cases in which an assistant master or mistress is responsible for all or even most of the subjects of a form are very rare and are confined to the lower classes. The plan now being considered in the United States that a teacher should be advanced from grade to grade with her pupils would thus not be feasible in the secondary schools in my committee's area as at present organized.

HUDDERSFIELD, ENGLAND.

1. Do any of your teachers remain in charge of a given set of pupils for more than one year? If so, how many teachers? Through what grades, or years, do they advance with the same pupils?

A very small number of our teachers remain in charge of a given set of pupils for more than one year. As a general rule, at the end of each year the pupils move up to another standard, but the teacher does not accompany them.

2. Does the better acquaintance of the teachers with their pupils thus secured result in a saving of school time? How much time?

Where the teacher does accompany the scholars some time is saved.

3. Do the teachers, from the practical knowledge of what precedes and what follows a particular grade, get a stronger grasp of the work of any given grade?

In such cases the teacher will have a stronger grasp of the work.

4. Does the teacher, from the deeper knowledge of the pupils thus acquired, treat her pupils more considerately and win their affections better than if she is confined to one grade?

No.

5. Does it tend to increase the professional zeal of the teacher and help to keep her "out of ruts"?

No.

6. Does it enable the inspector to locate more definitely the blame for poor teaching?

No.

7. Will you write at length about any other feature of this plan that may appeal to you?

With an exceptionally good teacher, we are of opinion that it is better for all the children in the school to go through his or her hands. If the scholars remain with one teacher throughout their school career, only one set of children receives the benefit of a superior teacher.

CITY OF LEEDS.

The head teacher places each teacher in that part of the school to which he or she is most adapted and where he or she is likely to do the best work. In many cases teachers pass forward year by year with their pupils, but this process is naturally limited by the qualifications and adaptability of the particular teacher. The better acquainted teachers become with their pupils, the greater the saving of school time; and it is a distinct advantage to the teacher to have a knowledge of the work preceding and following the particular grade in which he or she is for the time being engaged.

The way in which the teacher treats her pupils depends naturally upon the personality and disposition of the teacher. The closer knowledge the teacher has of her pupils the greater is the likelihood that she will win the pupil's affections.

It is certainly undesirable that any one teacher should keep to a particular grade in the school for an undue length of time, as such constant repetition of the same work would naturally have a deadening effect on initiative and originality.

So much depends upon the qualifications, disposition, and capacity of the individual teachers that it would be extremely bad policy to introduce any rigid system

with regard to the placing of the staff in the various schools. Elasticity is essential; each school should be dealt with on its merits, and the teachers attached to any one school should be allocated to that part of the school to which they may be reasonably expected to do the most efficient work.

LIVERPOOL.

1. Do any of your teachers remain in charge of a given set of pupils for more than one year? If so, how many teachers?

This depends on the internal organization of the department, which, within reasonable limits, is left in the hands of the managers and head teacher. In some departments it is the custom for the teachers to serve in rota—i. e., they begin with the bottom class and move upward with the class until the children in their charge pass out at the top of the school, when the procedure is repeated.

2. Does the better acquaintance of the teachers with their pupils thus secured result in a saving of school time? How much time?

Here the premise tends to beg the question. The committee's inspectors consider that this is very much a matter of opinion, as so much depends on the staff and the capability of the particular teachers.

3. Do the teachers, from the practical knowledge of what preceded and what follows a particular grade, get a stronger grasp of the work of any given grade?

Here again the premise tends to beg the question. Each class or grade is expected not only to go forward with the work of that class but to keep up the work of preceding classes; hence, the teacher of a particular class must necessarily have a strong grasp of the work of previous classes, and his teaching is expected to lead up to the work of the class above.

4. Does the teacher, from the deeper knowledge of the pupils thus acquired, treat her pupils more considerately and win their affections better than if she is confined to one grade?

Here yet again the premise tends to beg the question. Speaking in general terms, the answer to this question is in the negative. We expect all teachers to treat the pupils with extreme consideration and to win their affections.

5. Does it tend to increase the professional zeal of the teacher and help to keep her out of ruts?

We have not found this to be so; we neither expect nor permit our teachers to fall into set grooves.

6. Does it enable the inspector to locate more definitely the blame for poor teaching?

Not if he is a competent inspector; if he is not, he will not be a safe judge as to what is good or bad teaching.

7. Will you write at length about any other feature of this plan that may appeal to you?

On the whole, our senior inspector is not inclined to recommend the plan of keeping one teacher with the same children. We prefer to assume that a child, like his elders, profits "by the multitude of counselors."

This matter, like the more general matter of classification, is in England left entirely to the discretion of the head teacher of a school, and there is no uniformity of practice in English schools in regard to it. The board has no exact statistics on the subject, but probably in a considerable majority of English schools the same practice exists as in America. On the other hand, there are a fair number of schools where a teacher goes up with the same set of children from grade to grade.

There is a good deal of division of opinion among English teachers and inspectors as to the advantages and disadvantages of this system of letting the teacher go up with the children. It may, however, be said that in schools where it is practiced it is very unusual for a teacher to pass with the children through every grade from the lowest

to the highest, and it is believed that the great majority of teachers and inspectors would deprecate this extreme form of the system on the ground that the qualities required for teaching young children and older children are very seldom united in the same person. A more common practice is for teachers to go up two or three grades with the same set of children. The head teachers who adopt this plan urge (1) that if the teacher has to cover the same ground in his lessons year after year he becomes stale; (2) that he obtains a much better knowledge of the individual children under his charge when he retains them in his class for two or three years. On the other hand, many head teachers hold that a change of teachers after a year is frequently beneficial to the children, who are stimulated by the different methods and fresh outlook which a new teacher is sure to bring. They would add that in any case a change of teacher at the end of a year *is* clearly desirable if, as must often be the case, it results in transferring the children from a teacher of inferior to one of superior ability. The practice of keeping children under the same teacher for two or three years presses hardly on the children who happen originally to fall under the charge of a weak member of the staff.

It can hardly be denied that these conflicting arguments all have some force; the general result is to confirm the view that the matter is not one for any rigid regulation, but is best left to be dealt with by each head teacher in view of the special circumstances of his school and the character of his staff.

MANCHESTER, ENGLAND.

1. Do any of your teachers remain in charge of a given set of pupils for more than one year? If so, how many teachers? Through what grades or years do they advance with the same pupils?

Yes, but the number of teachers is not definitely known and varies from year to year. Frequently teachers remain in charge of pupils for two years or through two grades; occasionally for five years or through five grades.

2. Does the better acquaintance of the teachers with their pupils thus secured result in a saving of school time? How much time?

Yes, in many but not in all cases. Given a teacher considerably above the average and a class of intelligent, persevering pupils, the saving of time might be from 12 to 18 months.

3. Do the teachers, from the practical knowledge of what precedes and what follows a particular grade, get a stronger grasp of the work of any given grade?

Yes; teachers get a stronger grasp of the work of a given grade from their practical knowledge of what precedes and follows it. They also obtain a more intimate acquaintance with the aim and scope of the whole school curriculum.

4. Does the teacher, from the deeper knowledge of the pupils thus acquired, treat her pupils more considerately and win their affections better than if she is confined to one grade?

Yes, this generally follows; but the amount of affection won depends to a great extent upon the personal character of the teacher. It is easy to imagine a class leaving a teacher with feelings of keen regret and, on the other hand, with feelings of considerable relief.

5. Does it tend to increase the professional zeal of the teacher and help to keep her "out of ruts"?

Yes; if a teacher be left in charge of the same grade for several years the tendency to become stale is great; there is also the tendency to lose sight of ambition and to desire to be considered as a teacher of a certain grade only.

6. Does it enable the inspector to locate more definitely the blame for poor teaching?

Yes, in some degree; but, as a rule, the inspector does not need a series of years to locate the blame for poor teaching.

7. Will you write at length about any other features of this plan that may appeal to you?

The opinion is held that to make the system of universal application would not be wise. Its success would largely depend upon the personal character of the teacher. One of high aim and character, gifted with enthusiasm, resourcefulness, and the power of adaptability, would succeed beyond question. On the other hand, a weak teacher would fail, and the consequences to the children would be serious. It must also be borne in mind that certain teachers are particularly successful with younger children only, while others who are capable of really excellent work with older children almost fail when placed in charge of younger ones. Changes in the personnel of the staff and the success of the school as a whole have to be considered. The percentage of teachers well suited for all grades would not be great.

NOTTINGHAM, ENGLAND.

1. Do any of your teachers remain in charge of a given set of pupils for more than one year? If so, how many teachers? Through what grades, or years, do they advance with the same pupils?

Yes; but the practice varies in different schools. In some instances the teacher proceeds with the scholars from the lowest class in the school to the highest, while in others the more highly qualified teachers proceed with their scholars through the three or four higher classes, while the lesser qualified do not proceed beyond the lower two or three classes.

2. Does the better acquaintance of the teachers with their pupils, thus secured, result in a saving of school time? How much time?

Time is certainly saved by this arrangement, as the necessity for devoting the early part of the educational year to ascertaining exactly what the children have previously learned does not arise.

3. Do the teachers, from the practical knowledge of what precedes and what follows a particular grade, get a stronger grasp of the work of any given grade?

In my opinion, "Yes"; certainly.

4. Does the teacher, from the deeper knowledge of the pupils, thus acquired, treat her pupils more considerately, and win their affections better, than if she is confined to one grade?

Yes; wherever the teacher is naturally sympathetic.

5. Does it tend to increase the professional zeal of the teacher and help to keep her "out of ruts"?

Yes.

6. Does it enable the inspector to locate more definitely the blame for poor teaching?

Yes.

7. Will you write at length about any other feature of this plan that may appeal to you?

These remarks, of course, apply to men as well as women.

GLASGOW, SCOTLAND.

1. Do any of your teachers remain in charge of a given set of pupils for more than one year? If so, how many teachers? Through what grades, or years, do they advance with the same pupils?

Yes; in 83 schools the teachers remain in charge of a given set of pupils for more than one year. In 43 schools all the teachers remain in charge longer than one year; in 5 schools, half the teachers, and in 35 schools the number varies. Sixty-seven advance with the inferior grades, 80 with the junior grades, 70 with the senior, 24 with the supplemental, and 4 with the higher grades.

2. Does the better acquaintance of the teachers with their pupils, thus secured, result in a saving of school time? How much time?

In 80 schools it does result in a saving of time, in 2 schools it does not, and in 1 it is doubtful. The average opinion is that from four to six weeks' time is saved per session.

3. Do the teachers, from the practical knowledge of what precedes and what follows a particular grade, get a stronger grasp of the work of any given grade?

In 80 schools they do get a stronger grasp of the work, in 2 they do not, and 1 school was doubtful.

4. Does the teacher, from the deeper knowledge of the pupils, thus acquired, treat her pupils more considerately, and win their affections better, than if she is confined to one grade?

Seventy-five schools report that the teacher does treat her pupils more considerately and win their affections better, 2 schools report that she does not, and 6 schools were doubtful.

5. Does it tend to increase the professional zeal of the teacher and help to keep her "out of ruts"?

In 79 schools it does increase the professional zeal of the teacher, in 1 it does not, and 3 schools were doubtful.

6. Does it enable the inspector to locate more definitely the blame for poor teaching?

Sixty-five schools report that it does, 5 report that it does not, and 13 are doubtful.

7. Will you write at length about any other feature of this plan that may appeal to you?

Summary.—The general consensus of opinion is favorable to teachers taking their pupils through the different stages of each course; but the time a teacher should spend with pupils should not be more than two and one-half to three years. Few teachers are strong enough in all subjects to go forward from one course to another, and children are better to meet a fresh mind and new methods. In some cases a change each session is desirable, as different methods and ways of presenting subjects appeal to and stimulate certain types of children. Should a class be made up of dull pupils, a teacher, if long retained, is apt to become discouraged. A young teacher should be given the same grade for perhaps two years in order to become familiar with the work.

The arrangement can only be satisfactorily carried out if all the teaching members are "strong." If a class is under the charge of a "weak" teacher for more than six months or a year, the results are disastrous. A "weak" teacher may be sandwiched between two "strong" ones, or a "strong" one between two "weak" ones.

In the hands of a good teacher the "cycle" system saves time. A longer period being available, the teacher can arrange her work on a bolder scale. She is enabled to see the completed results of the methods she has employed and can modify and correct them. A feeling of responsibilty is increased and greater satisfaction experienced in seeing a larger section of work accomplished. The wider variety keeps alive her interest and provides a stimulus to exertion. She is enabled to view the work of the school from a higher standpoint, and her efforts should be directed toward securing such efficiency and intelligent grasp of the work as will enable the child to go forward to the succeeding stages with interest, confidence, and understanding. The teacher becomes thoroughly acquainted with the individual characteristics and varying capacities of the pupils, and their difficulties are better realized and anticipated. Pupils of slow mental development are under observation for a longer period and progress is more quickly observed. The teacher and pupils being familiar with each other, discipline is more easily secured and cases of friction are of comparatively rare occurrence. The system has more readily the cooperation of the parents, which is most helpful in the child's education.

In poor and migratory districts the system is unworkable, because the children come and go to such an extent.

The "fixed" system has the great advantage of making good teachers specially expert in their own particular division of the work. Through constant practice they acquire an accurate knowledge of the requirements of the grade.

Character and efficiency of the teacher are the factors which bring success or failure in the system.

EDINBURGH, SCOTLAND.

Considerable freedom is left to the headmasters in the organization of the schools.

In the elementary schools, however, the general practice is that in the infant departments, in which normal pupils' age is from 5 to 7 years, the teachers do not advance with the pupils beyond that department; in the junior and senior divisions, in which normal pupils' age is from 7 to 12 years, the teachers advance with their pupils, while in the supplementary classes, restricted to pupils over 12 years, the boys and girls are taught in separate classes and remain under their particular teachers until they leave school.

In higher grade and secondary schools the organization is necessarily very different, as specialist teachers are employed and the pupils are in charge of different teachers for each subject of the curriculum.

VICTORIA, NEW SOUTH WALES.

Some 12 or 13 years ago this department became convinced that the lock-step system of grading pupils of our public schools was inadequate to meet the needs of any but the dullest members of the class. Personally, I have for years been convinced that the proper model for our large graded schools is the ungraded rural school, where a child is allowed to pass from one grade to another as often during the year or term as his qualifications demand.

In this Province our course of study is divided into three grades and teachers are encouraged to keep the same class of children through the whole length of time which such children pass in any single grade. For example, a teacher who takes the receiving class in August is expected to keep the same class through the first and second primer, the first and second reader, or for a period of about three and one-half years. The same holds good with classes in the intermediate and the senior grades, although this department thinks it advisable at present to restrict primary teachers to the junior grade, intermediate teachers to the intermediate grade, and senior teachers to the senior grade. In no school in the Province does a teacher begin with the beginners' class and after seven or eight years promote that class under her personal supervision into the high school. Even in the matter of carrying on a class under the same teacher in each grade this department through its inspectors meets a great deal of difficulty through the disinclination of teachers to attempt other than the work for which they consider themselves specially adapted. In fact the more stereotyped a teacher's work becomes the fonder such teacher appears to become of this work.

This department was induced some 12 or 13 years ago to make this far-reaching change for the reason that I found many children from 12 to 16 years of age floating about in an educational back eddy, so to speak. This had been brought about by the rigidity with which these children were promoted. For example, if in any specific year a certain school had eight teachers, each child was required to pass under each of these eight teachers before he could enter the high school. If in three or four years from the first date this school became a school of 15 teachers, a child attending that school was compelled to pass through the hands of 15 individual teachers before entering the high school.

I am extremely interested in learning that your bureau is beginning to give some attention to the subject of grading. It is in my opinion the great outstanding blot

on the whole educational system in the United States, giving as it does no opportunity for the clever pupil to exercise his talents, but reducing all members of the class to a uniform standard and that standard is necessarily the rate of progress of the slowest pupil. The experiments which we have made in this Province will, I am sure, have your careful attention and consideration.

WINNIPEG, CANADA.

Under the system in vogue in the matter of promotion of teachers in our Winnipeg city schools it may happen that a teacher will remain with the same class for three or four years. One of my own boys spent three years with the same teacher, who was promoted each year with her class; and in this particular case I considered it a disadvantage in many ways for the boy, as she was not a strong teacher, but under the by-laws of the board she was entitled to be moved up a grade each year. The superintendent thought it better to leave her in the same school rather than to transfer her.

Many arguments may be urged in favor of the teacher remaining with her class from year to year.

I have on several occasions tried the experiment of having a teacher remain for two or three years with the same set of children, advancing the teacher as the children were promoted. The circumstances for such an experiment were perhaps not very favorable, as Winnipeg has been for years a rapidly growing city, the population of which changes quite frequently, and I have found that at the end of three years the class remaining with a teacher consists of a comparatively small proportion of those who had begun with her in the first grade. I am unable to say that the class that was for the three years with the one teacher was in any better position than children of the same age who had been for three years in the hands of three equally competent teachers for one year each. It seems to me that in the case of a good teacher the loss incurred through taking a teacher from the grade for which she has special aptitude counterbalances the gain that would come through having children continuously with the one teacher for a longer period than the year. In the case of the teacher whose work is not quite up to the standard, it would be manifestly a disadvantage to have children remain longer than the usual term.

FREDERICTON, NEW BRUNSWICK.

While the matter has been frequently discussed here, we can furnish no complete example of the same.

It has generally been thought that the qualifications of a primary teacher are so vastly different from those required of a teacher of grade 8 that it would scarcely be consistent to follow this plan.

I do not refer to scholastic qualifications, but to the peculiar professional qualifications required in primary work.

TORONTO, CANADA.

So far as this department is aware, the practice in urban municipalities in Ontario is for a board to appoint, for each grade or form, teachers who continue as instructors on such forms, the pupils only being promoted. The boards, of course, occasionally change the teachers from one form to another.

MOOSEJAW, SASKATCHEWAN.

In several isolated cases for different reasons teachers have been changed from one trade to the other, and I find that it takes some months for the teacher to become familiar with the work of the new grade. This, I think, would far outweigh the reason that teachers might be promoted, namely, in order that pupils would be familiar with their teacher.

PRINCE ALBERT, SASKATCHEWAN.

This plan has not been followed here to a sufficient extent to indicate whether the plan would be a wise one or not.

I think of trying out the plan in the case of one or more classes during the coming year and will be glad to let you know the result of the experiment.

REGINA, SASKATCHEWAN.

Grade 1 teachers take their classes through to the end of grade 2, which takes from one to one and a half years. This is a comparatively new policy here, but so far it has proved highly satisfactory.

SASKATOON, SASKATCHEWAN.

I can not say that we have had very much experience, but we do make it a rule, wherever possible, to keep a teacher with a class for a full year. A number of years ago it was the custom here to change the classes after every term, making two changes each year. I decided that there was too great a loss of energy and time, and made the alteration two or three years ago.

Sometimes it occurs, of course, that it is impossible to keep a class with the teacher for the full year, and I have had one or two cases where the teacher has remained with her class for a year and a half.

There is, possibly, one objection to having the teachers advance with the pupils from year to year. Very frequently in class rooms you will find antagonism arising between one or more pupils and the teacher, through incompatibility of temperament. In such cases it would clearly be a mistake to have the pupils remain with the same teacher for a number of years.

Of course, some method might easily be devised to overcome this difficulty where you have a large school with a good many teachers.

There are a number of things to be said, however, in favor of moving the teacher along with the class, because there will not be the loss of time that is ordinarily taken for a teacher to get acquainted with her pupils and the time that is required for the pupils to get adjusted to a new teacher.

On the whole, it would appear to me to be rather a difficult matter to maintain this arrangement in our schools in Saskatoon as they are organized at the present time.

BRISBANE, QUEENSLAND.

With us there is no hard and fast rule in this matter and our head teachers have a free hand in assigning duties to their assistants. Our schools are divided into six classes, and, as a general rule, the teachers of the fifth and sixth and of the infants (class 1) remain in their positions more or less permanently, because they are supposed to possess special qualifications for the higher or lower work, respectively. For classes 2, 3, and 4 teachers are often interchanged, and sometimes the principle is adopted of letting the same teacher carry forward the same children through all these classes. In the secondary schools, where specialists are often employed for languages, English, mathematics, or history, it often happens that the child has the same teacher for a single subject throughout his school life.

The advantages and disadvantages of the two principles may be summed up as follows:

(*a*) For the teacher: Change of work tends to reduce the amount of mechanical teaching, and has a quickening and refreshing effect. On the other hand, it undoubtedly adds to the teacher's labors in the matter of preparation of new material for varying courses. Many teachers are quite unfitted by nature for infant work, others are without the knowledge necessary for the higher classes, others are incapable of maintaining discipline among the older children. In secondary school work specialization

greatly reduces the burden of teachers in the preparation of their lessons, and it leads to greater thoroughness, while the retention of the pupil in the hands of the same teacher for the one subject in different years prevents overlapping of the teaching in that subject and makes the whole course more systematic and progressive. At the same time specialization tends to narrow the range of a teacher's knowledge and to render the teacher each year less fitted to take general charge as head teacher in a large school.

(*b*) For the pupil: The pupil, if working year after year with the same teacher, is more likely to become attached to him and to work willingly for him, and the teacher, knowing the nature of each pupil more intimately, is able to direct his growth of knowledge and character more effectually. On the other hand, antagonisms frequently arise between pupil and teacher, for whom a change is of great mutual benefit. Different teachers also have individual characteristics and individual methods of teaching, and a child who has been through the hands of several teachers has often gained a wider and better moral training and a more general knowledge than a child who has been kept in the hands of one teacher through the greater part of his school life. Teachers are not all of one and the same value; there are some in every school who stand out above the rest in moral influence and power of exposition. The child who was fortunate enough to spend the whole of his school life under one of these would have a very unfair advantage over the one who by the same principle was condemned to serve all his school days under the same inferior master. Under the system of changing teachers the influence of a good man is more widely distributed and the deficiencies of an inferior man are minimized.

It seems to be established that it is undesirable to have any hard and fast rule in the matter. If, however, a rule had to be adopted, we should regard it as the lesser evil to keep the teachers in the same grade and to promote the children through the hands of the successive teachers.

HOBART, TASMANIA.

In a few schools the practice of continuing a teacher through three or even four of these grades has been successfully carried out, but success has only been met with in the case of competent and popular teachers. As a general rule teachers are confined to one or two grades.

The large majority of our schools, however, consist of 80 pupils or less and are taught by two or, more often, by one teacher. In such cases the children continue their work under the same teacher for from three to seven years.

PERTH, WESTERN AUSTRALIA.

We have no general rule on the subject. It has, however, received attention with us, as with you, though mainly from a rather different standpoint. There has not been any general expression of opinion to the effect that the annual change of teachers does any harm to the child. But it has been felt that injustice is done to a teacher who is kept for many years in charge of the same class. If a teacher succeeds in class 3, is retained there, gets the reputation of being a good teacher of class 3, and is never given the opportunity of taking the work of a higher class, his experience is very limited. This must tell against him if he receives promotion to a headmastership. We are therefore urging our headmasters to see that the assistants with higher qualifications are given the opportunity of working with different classes, and especially to see that they have, in turn, the opportunity of showing their fitness for dealing with the higher classes. The inspectors are also asked to insure that this arrangement is carried out.

In a few cases the experiment has been made of promoting a teacher with a class for several years in succession. With a very good teacher I think that the results are likely to be satisfactory; but I believe that there are very grave objections to a general adoption of the scheme. The members of a staff are never all of equal excellence. Under the usual arrangement a child in passing through the school comes under the stronger as well as weaker assistants. To keep one group of children for three or four years under the weakest of the staff, while another group is for three or four years under the strongest, may do a serious injustice to the former. Even if all the assistants are

on a high level of competence, each is likely to possess some individual characteristic which may exert a great influence upon the pupils, and which may make an appeal or provide an inspiration that differs from those made or provided by the other assistants. It seems to me that the balance of advantage for the child lies in the system which brings him into close contact with several distinct personalities.

I recognize, of course, that much can be said on the other side in connection with the superior insight into the individual characters that can be obtained by a teacher who is in charge of children for several years in succession. I am, however, inclined to the opinion that the general adoption of a system of promoting teachers with their classes for several years in succession will have more disadvantages than advantages. At the same time I think that, as far as possible, teachers should have the opportunity, within a reasonable period, of acquiring experience with lower, middle, and upper classes.

ATHENS, GREECE.

There is no law providing for the advancement of teachers from grade to grade with the scholars, although it not infrequently happens that school inspectors recommend in special cases that such promotion be made. This, however, is a matter entirely within the pleasure of the inspecting officer.

The consensus of opinion of teachers interviewed was that efficiency would be increased by the promotion of the teacher with the scholars.

CHRISTIANIA, NORWAY.

It is the custom in Norway for the principal teacher of a grade to keep with her or his grade, although with certain modifications.

The Norwegian public school has seven grades of promotion, each of one year; boys and girls are taught separately; in the three lower grades only lady teachers are employed, and the lady teacher in every instance keeps with her grade for these three years. From the fourth year on the instruction is generally transferred to a man teacher; and the principal teacher, who instructs his grade in the main branches of knowledge, such as the native language, religion, and arithmetic, continues with his grade to the end of the school.

A lady teacher who is the principal teacher in a girls' school will as a rule always keep with her grade for the seven years.

In certain branches of knowledge the teacher will change from year to year.

LISBON, PORTUGAL.

The system of promoting scholar and teacher is not uniform throughout the country, but wherever possible it is provided that the same teacher should accompany the pupil at least through a grade, or for three years. Some elementary schools exist where the child has the same teacher for four, five, and six years, and others where a change is made each year. The general impression among the Lisbon educators seems to be that better results are obtained in the schools where the teacher accompanies the pupil for at least three years than in those where the pupils have a new instructor each year.

MADRID, SPAIN.

Teachers are not advanced from grade to grade as the pupils are, but after a stated term of service they may be advanced without examination to a higher grade upon the occurrence of a vacancy. Some educators in Madrid have expressed themselves as of the belief that, as far as Spain is concerned, there might be danger of favoritism if teachers continued to instruct the same class throughout the four-year course; others advocate that one teacher instruct two grades simultaneously to the end that pupils of the lower grade, when advanced to the upper, will have become accustomed to the personality and methods of the teacher, so that better results will be attained on the part of pupils as well as on the part of teachers.

BERNE, SWITZERLAND.

There are in Switzerland many sorts and classes of schools, such as the small country schools, where one or two teachers have charge of the entire number of pupils and give the instruction prescribed in all the eight or nine grades.

The city schools are divided into primary and secondary schools. These have four grades of primary classes and five secondary, one years' instruction being given in each grade. In the primary grades the instruction is given by two or three teachers, and in the secondary grades by six or seven. The aim is to have the pupils continue with the same teachers for two, three, or four years when possible. This rule is strictly adhered to in the first and second school years, when the teachers are promoted with their pupils from the first to the second grade. In the main branches, and especially in mathematics, the plan is to have the pupils continue with the same teachers for two or three years in both the primary and secondary schools.

With the exception of gymnastics, singing, etc., where the pupils go to special classrooms equipped for instruction in these branches, they remain in one room, which is visited by the different teachers. The average number of pupils to a class is from 30 to 35.

It may be stated that in modern-language instruction it is considered well for the pupils to have several teachers during the four or five years' course. In this way their ear becomes accustomed to the different voices and pronunciations of their instructors.

ZURICH, SWITZERLAND.

The plan of advancing the teachers from grade to grade with their pupils has been in vogue from time immemorial in the cantonal schools here and they consider that the plan brings the most excellent results in every way. This plan is, of course, applied only in the elementary schools, so-called Primarschulen, which cover a period of six years, and during the first four years of this period the plan is obligatory, and it is also practically always applied during the remaining two years' work.

With regard to the other questions of your questionnaire, the directors of education are inclined to answer them all in the affirmative, with the reservation that they have always used this plan and therefore can not make comparisons. They, however, consider the plan especially valuable because it enables the teachers—who are practically all men—to gain a deeper knowledge and insight into the character of the pupils and thus better win their respect and affections.

SUMMARY OF ARGUMENTS FOR AND AGAINST THE PLAN.

It now seems appropriate, with this testimony, domestic and foreign, from teachers as well as from superintendents, to summarize the objections, in all their various shades and phases, to the advancement of teachers with classes, as gleaned from the answers of superintendents, and to try to evaluate these objections in the light of this evidence:

REASONS FOR NOT ADVANCING TEACHERS WITH CLASS.

(Summarized answers of superintendents.)

A. With special reference to the teacher:

1. Preparation of teacher—

Many teachers either new or poorly trained; these need to be a long time in one grade to learn the routine; if they remain in it, they acquire some efficiency, they have more time to study the subjects of the grade and methods of presenting them. Normal course too short to prepare for plan of advancement.

A. With special reference to the teacher—Continued.
   2. Natural ability and tastes—
      Many teachers are naturally weak or mediocre in sympathy for children, in talent to impart knowledge and to develop initiative, and in capacity to secure discipline. Their inability becomes more pronounced if they are advanced.
      Many strong teachers adapted to pupils of a particular age—e. g., certain primary and some high-school teachers—would fail partially or entirely with pupils of another age.
   3. Preference of teachers—
      Advancement means "more labor?" and "wearing out of teachers?"; many have "fixed ideas"; "unwilling to change"; "would resign if required"; "more enthusiasm with new classes"; "normal graduates prefer specific grades."
   4. Tenure of office too insecure—
      Too much labor involved for the prospects offered.

B. With special reference to the pupil:
   1. Fairness in treatment of pupils—
      All have equal opportunities as far as weak and strong teachers are concerned.
   2. Preference of pupils—
      Children like frequent changes; pupils and teachers get tired of each other in one year.
   3. Advantage of several personalities—
      Pupils do not become dependent on viewpoint of one teacher.
   4. Saving of time, etc.

C. With special reference to administration:
   1. Too many changes in teaching force—
      The plan of advancement implies stability of corps; hard to keep such at salaries of $500–$600.
   2. Salary schedule (made out on other grounds) forbids.
   3. Too many changes of pupils—
      The advancement plan implies continuance of individual pupils of classes.
   4. Higher percentage of attendance of children under present plan.
   5. Prevents gaps between the grades—
      Under advancement plan teachers too anxious to promote pupils.
   6. Present plan simpler and more convenient.
   7. Opposition of school board—
      Community too conservative.
   8. Inertia, custom, inheritance "sicut erat in principio," etc.
   9. Not convinced that any other system is better; lack of investigation; sure of results of present plan; "when a teacher is doing strong work let her alone"; no experience with any other plan.

Affirmative Arguments.

A. As far as the argument in the negative concerns itself with the need of greater general preparation, more secure tenure, and higher salaries, it may be admitted at once that the evidence in general indicates that this need is genuine; but it does not follow that poor training, low salaries, and short tenure tend to produce greater proficiency under the plan of retention of teachers in grade than would

be the case under the advancement plan. In fact, it would appear from the bulk of positive evidence that the latter plan so stimulates the teacher that she may in part, at least, overcome her deficiencies. It is true that the "weak" teacher problem is difficult of solution under any system, but the facts obtained show that the advancement method within certain just limitations tends to strengthen the weak teacher and to make strong the mediocre. It also makes so manifest the bad effects of poor teaching that it becomes easier for school authorities to remove those without natural ability or acquired skill to some other kind of service for which the persons in question may be better adapted or where, in any case, bad work will be less harmful.

There is a basis of fact for the opinion that certain types of teachers, particularly those whose nature would find greatest happiness and success in dealing with young children, should progress through a narrow range. Yet even here the range may, in fact, be greater than one's preconceived notions would have admitted.

But the statements that teachers for various reasons are hostile to the plan are not well supported by the evidence as given in the summaries of the teachers' and superintendents' lists.

B. As for the negative arguments that refer specially to the advantage of the child, it may be said:

1. Touching fairness of treatment: Inasmuch as the progressive plan tends to the removal of "weak" teachers and for the increased efficiency of all others, the general result must be favorable to the child.

2. Furthermore, except in a small percentage of cases (presumably cases of "weak" teaching), the children are glad to have the teacher go up with them.

3. One of the most difficult of all educational questions is undoubtedly this: How long should a child be subject to the directing influence of one teacher's personality? The presumption given by the evidence is that it should be for a considerable period during the formative stages of child growth. Just how long that guiding influence of the teacher should continue in each case must be determined with insight and by experience on the part of the immediate administrators. It is to be noted that this influence of one teacher's personality is supplemented by the personal influences of classmates and friends as well as by those of the family at home.

The saving of time, greater joy, ease and confidence in the work, the possibility of more rapid advancement in grade, as well as the greater unification of the pupil's knowledge would appear to be consequent advantages for the child from the advancement plan.

C. As for the practical difficulties from the standpoint of school administration, it is but natural that such should be found in the way of a new method, especially a method so wide-reaching in its effects.

It may be said, however, that if the method can prove its case, the opposition of school board and community would naturally cease.

With more permanent tenure, higher salaries, and elimination of poorest teachers, the greatest difficulty would gradually disappear. Should the salary schedule be made out on a basis of merit rather than of grade, a notable stumblingblock would vanish.

As for the claim of higher percentage of attendance, and fewer gaps between grades, under the present system, this claim does not seem to be well founded where a fair trial of the new plan has been given.

It may indeed be that the present plan is "simpler and more convenient," at least at the beginning; but this is not a strong consideration, provided the newer plan offers greater benefits for the children for whom alone the schools are maintained.

As far as the changing of pupils from one district to another is concerned, it must be said that this must be expected in the case of a certain percentage of the children, particularly in the sections where the newer immigrants dwell. But the cases are rare indeed where the changes would equal 50 per cent of the class enrollment, and if the plan has distinct merit it might be tried with 50 per cent.

It need hardly be said that the advocates of this plan regard it not as a panacea, but as a principle, rather, whose application tends toward proficiency.

It must be clearly noted that the objections urged against the plan do not even touch many of the strongest points of advantage claimed for it, particularly the advantages which accrue from deeper knowledge of the pupil, with the correlative knowledge of the home, the community, the industries, and civic life.

The objectors overlook, too, the need of keeping the teacher personally and professionally alive in order that she may be vitally strong for the performance of these newly discovered duties. They overlook also the fact that of all the rewards the genuine teacher can receive, the greatest is to have the privilege of seeing the fruit of her labors, in observing, assisting, and experiencing the genial growth of the pupil's powers of mind and heart and character.

ADDENDA.[1]

LETTERS CONCERNING THE ADVANCEMENT OF TEACHER WITH CLASS IN FOREIGN COUNTRIES.

QUITO, ECUADOR.

The policy does not exist in the schools of Ecuador, and it is the judgment of the minister of education that, until a high degree of efficiency may be attained in the corps of teachers employed, it would be a mistake to adopt that policy. However, the minister agrees that when the efficiency of the teacher is of the proper standard the policy is commendable.

RIO DE JANEIRO, BRAZIL.

The primary school system of the Federal District is under the jurisdiction of the municipal government of Rio de Janeiro and provides for a six-year course, usually completed by the pupil between the ages of 6 and 12 years and corresponding in a measure to the American "graded" schools. This six-year study is divided into three courses, viz: First, elementary, of three years; second, intermediary, of two years; and third, "complemental," of one year.

There are no set rules by which a class of pupils continues to have the same teacher for a period of consecutive years, although some school inspectors require the teachers under their jurisdiction to accompany a class throughout the primary course. Others, however, permit the teachers to continue teaching in the same "grade," while their pupils advance progressively to other grades and consequently come under other successive teachers.

In the majority of primary schools in this capital the pupils usually pass through the hands of three teachers during their primary course of six years, namely, for periods of three years, two years, and one year, respectively.

CARACAS, VENEZUELA.

The process of grading in the primary school being established, there exist two equally possible methods for progressive development in the transmission of knowledge: Either the instructor is teacher of a fixed grade through which the pupils pass successively until they reach the final grade, or the teacher works with a fixed group of pupils from the first to the last year of instruction and goes, so to speak, progressing by grades with his pupils.

In Venezuela the first method is in force. The full primary course consists of six grades, completed, generally, in six years. The first four grades are of obligatory primary instruction.

In Venezuela we can not cite the results of concrete experience in either of the two processes. The grading of the schools dates from few years back, and from its beginning the system of a fixed teacher has been adopted.

The opinion of Venezuela, therefore, must be on the ground of fundamental reasons of a process which appears more in accord with the specialization of the teacher, even although a sacrifice is made of the single influence during the scholastic period.

[1] The statements appended were received after this matter was in type, too late for insertion in regular order.—EDITOR.

Both procedures possess their inherent advantages and disadvantages. Thus, in whichever of them is adopted, there must be sacrificed benefits which might be obtained from the other.

Unquestionably a single influence during the whole time that instruction continues appears adequate for the best adaptation of the child's mind to scholastic exercise. The teacher thus penetrates more fully the mind of the child, becomes intimate therewith and proceeds as the traditional physician of the family, who can, in each pathological manifestation, rapidly ascertain causes and deduce the procedure adequate to the concrete case, using physiological factors as active collaborators to restore organic functions to their normal working.

The teacher in this case is the physician of the mind, but such advantages have not the same value in the special case of transmission of knowledge. The function of the physician is individual and concrete; that of the teacher is general and has for its object the raising of the intellectual and moral level of society. The teacher proceeds rather as a workman of a large workshop, which the school is, where the child's mind is the raw material which is to be molded in a determined form. The fact that specialization in any kind of activity leads to efficacious results for the final and complete work is not pertinent to the discussion, and in the case under consideration the teacher specialized in the imparting of knowledge of one grade is of more importance than the specialization of his work in a series of individualities. With the system of a fixed teacher the latter acquires great ability in directing the mind in a particular grade of its development and in the transmission of a limited amount of knowledge. A succession of teachers produces, therefore, a more complete work than if each one takes a pupil for direction during his entire scholastic life. Given the invariability of principles and the regularity and perfect continuity of the programs, a succession of teachers in the six or eight grades has the effect, in the scholastic period, of a single man, of a single directive mind, and if at first such be not the case we believe that this is sooner and more fully attained by the process of the specialization of the teacher in the work of one grade than with the ascending teacher.

BERLIN, PRUSSIA.

The question whether a teacher be promoted from grade to grade with the pupil, or if the same teacher continue in the same grade from year to year, whereas the pupil is given a new teacher each year, is not regulated uniformly in Germany.

The organization and arrangement of an elementary school usually depend upon the size of the place and number of pupils. One must differentiate between schools with one teacher, with two teachers, or schools containing several classes with three or more teachers. In schools with one teacher, or in one-class schools, the pupils are taught throughout the whole school period by one teacher, in so far as no change was necessitated by death or promotion of the teacher. In schools with two or three teachers, teachers are promoted from grade to grade with the pupils for several years. In schools with four to six teachers, the pupils are under the direction of the same teacher during two or more years, which often occurs in several kinds of schools. Only in schools in larger cities and especially in the largest cities, where there is a special class for each of the eight grades, it occurs that a pupil has a different teacher in each class.

Furthermore, the manifold phases of this question are enhanced by the fact that for some subjects, especially technical ones, such as gymnastics, drawing, and singing, special teachers are chosen, who teach the same subject in different classes. The number of lessons to be given in the higher grades (in the subjects above mentioned) is so great that one teacher can not attend to them alone. Such special instruction necessitates a continuation of the classes upon one or several subjects by the same teacher.

While in the schools with only a few classes the question of the teacher being promoted from grade to grade with the same pupils is more or less dependent upon the organization of the school, the schoolmaster or the school board decides upon this question in schools of over seven or eight classes. But even there this matter is not uniformly arranged. The personality of the teacher is determinative whether the pupil is to change the teacher every year, or whether the teacher may continue with his class, and how long. To let a less capable or reliable teacher educate the pupils throughout several years is avoided, if possible.

Some teachers are suited for special classes, as, for instance, for the fundamental work (Grundklasse). These are conferred upon them as far as possible. Older teachers often try to keep one class for several years, whereas the younger ones prefer to continue the same work for several years.

It is regarded as an exception that in elementary schools with several classes a teacher follows his class throughout all the years. Even with especially capable teachers, this is avoided. At least during the last two or three years the children are placed under the direction of another teacher, so as to avoid the danger of one-sidedness.

In those girls' and boys' schools that go beyond the terms of an elementary school, the classes are continued by the same teacher, the same as in the elementary schools with several classes (described above).

VIENNA, AUSTRIA.

In the general public schools and their class divisions the question whether the teachers change their pupils each year or continue to have charge of them is regulated as follows:

1. The principal, at the last teachers' conference of the school year—that is, in the first half of the month of July—assigns to each teacher, in accordance with the School and Instruction Order of September 29, 1905, the class of which he is to have charge in the ensuing school year.

2. The rule requires that in most of the public schools of Vienna, those consisting of five classes, each teacher shall keep his pupils (male or female) from the first to the fifth school year.

3. The first class (first school year) is not assigned to beginning or physically weak teachers.

4. In the five, six, and seven class public schools, the upper classes (sixth to eighth school year) are assigned to particularly efficient teachers, especially where, because of social conditions, home training is defective.

5. In class divisions in which a special want of success in instruction and school training is evident the teacher is changed, so that the new teacher may correct, as far as possible, that in which his predecessor has failed.

6. The class apportionment made by the principal at the end of the school year is examined at the beginning of the new school year, together with the order of exercises by the State school director, who is the imperial royal school inspector, and changed by him when necessary.

ROME, ITALY.

It appears that the principle of advancing the masters in the various classes of elementary instruction in such manner that they accompany, so far as possible, from year to year, each body of their pupils has for a long time been the ideal sought in scholastic regulation in Italy; but the difficulties of varied character opposing the attainment of this ideal condition have been such that it has only been found practicable to secure partial success in this regard, and not in a uniform manner for the entire Kingdom. Success in this endeavor has been found easier of accomplishment in large

communities, where there are many schools and a large body of instructors, and less feasible in small communities, where there are but few schools with more classes united under one instructor or instructress.

Indeed, article 185 of the general regulation of February 6, 1908, provides as follows:

Teachers are required to instruct in each of the various classes of the grade (superior or inferior) for which they have been qualified (after competitive examination), and to which they have been assigned. Wherever possible and advisable, upon didactic grounds, and where municipal regulations have not already disposed of the matter, the supervisor of schools ("Provveditore"), the advice of the commune and the royal inspector having first been sought, may direct that teachers of the inferior grade (Classes I, II, and III) and those of the superior grade (Classes IV, V, and VI) proceed with their pupils in their respective grades, from Class I to Classes II and III, and from Class IV to Classes V and VI.

After the application of the law of June 4, 1911, No. 487, which decreed the transfer to the provincial scholastic council of the administration of the elementary schools, leaving that administration only to the larger communes which are chief places of the Province or district (Circondario), the problem of the advancement of the instructors in the various classes, for the purpose of having them follow from year to year their pupils, found different solutions in two separate regulations, one for the schools administered by the scholastic council and another for those left to administration of the communes.

For the schools administered by the scholastic council the regulation of April 6, 1913, No. 549, contains a very broad provision, which opens the way to more perfect advancement.

As regards the schools of the communes which remained autonomous after the law of June 4, 1911, the other regulation of April 6, 1913, provides that where there are no local opposing difficulties the teachers of the inferior grade and those of the superior grade remain in charge of their pupils from the I to the III classes, and from the IV to the VI classes, respectively.

ADELAIDE, SOUTH AUSTRALIA.

In the elementary schools of this State there have been very few experiments made in continuing a teacher with the same scholars for a number of years. We have no reports as to the success or otherwise of these experiments. Transfers of teachers from one school to another are not infrequent, and hence the continuous association of scholar and teacher is not always easily maintained.

In the larger schools the teachers of the junior scholars are, as a rule, specially trained for teaching junior children. In these schools also the teachers in the top classes tend to specialize for the work there. Thus they deal every year with different groups of children.

Occasionally the teachers follow the children on their promotion at the end of the year, but generally they are placed in charge of the groups with which they can do the most effective work.

The appointment of members of the school staff to the classes is left entirely in the hands of the head teacher, who is expected to give each teacher the work he or she is most fitted for.

There is little or no tendency among head teachers to the dual promotion.

WELLINGTON, NEW ZEALAND.

In New Zealand pupils are classified in six grades or standards (known as S. I, S. II, etc.) to which are to be added two grades of a preparatory division below the first standard. In general, for the first two years of their school life, beginning at the age of 5 or 6 years, the pupils are in this preparatory division. This distribution is not to be taken as implying, however, that a pupil passes through only one standard

or only one grade of the preparatory division in a year. Teachers have entire freedom in classifying their pupils according to progress and ability, and promotion, particularly in the lower grades, is often more rapid.

At the same time the majority of pupils in the standard classes pass through only one grade in a year, and successive drafts of pupils have the same teacher in that grade. Recognizing the disadvantages of this form of organization, head masters not infrequently, however, assign to members of the staff the charge of the same pupils for two or more years in succession, and the observed results have generally been highly beneficial in the case of both the teacher and the pupil. How far the practice may extend depends largely on personal considerations, and it is felt that the matter is best left in the hands of the head master, who, with a full knowledge of the capabilities of his staff, must decide what organization is best in the interest of his pupils.

TOKYO, JAPAN.

The length of school courses are: Primary schools, six years; grammar schools, two years (which may be extended to three). The six years of the primary school are compulsory. Every pupil who completes the requirement of a school year is promoted into the next grade. A grade may be divided into classes according to the number of pupils.

Each grade is in charge of a licensed teacher. Whether the teacher remains in one grade from year to year or is promoted with the children is not determined by law, but it is customary for the principal of the school to determine this according to the school curriculum and other considerations.

From the experiences of the primary schools in general it is asserted that in case a good teacher is in charge of a class he should accompany the children as they advance. Of this there are many instances.

BULLETIN OF THE BUREAU OF EDUCATION.

[NOTE.—With the exceptions indicated, the documents named below will be sent free of charge upon application to the Commissioner of Education, Washington, D. C. Those marked with an asterisk (*) are no longer available for free distribution, but may be had of the Superintendent of Documents, Government Printing Office, Washington, D. C., upon payment of the price stated. Remittances should be made in coin, currency, or money order. Stamps are not accepted. Numbers omitted are out of print.]

1906.

*No. 3. State school systems: Legislation and judicial decisions relating to public education, Oct. 1, 1904, to Oct. 1, 1906. Edward C. Elliott. 15 cts.

1908.

No. 6. The apprenticeship system in its relation to industrial education. Carroll D. Wright. 15 cts.
No. 8. Statistics of State universities and other institutions of higher education partially supported by the State, 1907–8.

1909.

No. 2. Admission of Chinese students to American colleges. John Fryer.
*No. 3. Daily meals of school children. Caroline L. Hunt. 10 cts.
No. 5. Statistics of public, society, and school libraries in 1908.
No. 7. Index to the Reports of the Commissioner of Education, 1867–1907.
*No. 8. A teacher's professional library. Classified list of 100 titles. 5 cts.
No. 9. Bibliography of education for 1908–9. 10 cts.
No. 10. Education for efficiency in railroad service. J. Shirley Eaton.
*No. 11. Statistics of State universities and other institutions of higher education partially supported by the State, 1908–9. 5 cts.

1910.

*No. 2. State school systems: III. Legislation and judicial decisions relating to public education, Oct. 1, 1908, to Oct. 1, 1909. Edward C. Elliott. 25 cts.
*No. 5. American schoolhouses. Fletcher B. Dresslar. 75 cts.

1911.

*No. 1. Bibliography of science teaching. 5 cts.
*No. 3. Agencies for the improvement of teachers in service. William C. Ruediger. 15 cts.
*No. 4. Report of the commission appointed to study the system of education in the public schools of Baltimore. 10 cts.
*No. 5. Age and grade census of schools and colleges. George D. Strayer. 10 cts.
*No. 6. Graduate work in mathematics in universities and in other institutions of like grade in the United States. 5 cts.
No. 7. Undergraduate work in mathematics in colleges and universities.
*No. 9. Mathematics in the technological schools of collegiate grade in the United States. 5 cts.
*No. 13. Mathematics in the elementary schools of the United States. 15 cts.
*No. 14. Provision for exceptional children in the public schools. J. H. Van Sickle, Lightner Witmer, and Leonard P. Ayres. 10 cts.
*No. 15. Educational system of China as recently reconstructed. Harry E. King. 10 cts.
*No. 19. Statistics of State universities and other institutions of higher education partially supported by the State, 1910–11. 5 cts.

1912.

*No. 1. A course of study for the preparation of rural-school teachers. F. Mutchler and W. J. Craig. 5 cts.
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*No. 3. Report of committee on uniform records and reports. 5 cts.
*No. 4. Mathematics in technical secondary schools in the United States. 5 cts.
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*No. 7. Educational status of nursing. M. Adelaide Nutting. 10 cts.
*No. 9. Country schools for city boys. William S. Myers. 10 cts.
No. 11. Current educational topics, No. I.
*No. 13. Influences tending to improve the work of the teacher of mathematics. 5 cts.

*No. 14. Report of the American commissioners of the international commission on the teaching of mathematics. 10 cts.
*No. 17. The Montessori system of education. Anna T. Smith. 5 cts.
*No. 18. Teaching language through agriculture and domestic science. M. A. Leiper. 5 cts.
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*No. 23. Special collections in libraries in the United States. W. D. Johnston and I. G. Mudge. 10 cts.
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No. 27. History of public-school education in Arkansas. Stephen B. Weeks.
*No. 28. Cultivating school grounds in Wake County, N. C. Zebulon Judd. 5 cts.
No. 29. Bibliography of the teaching of mathematics, 1900–1912. D. E. Smith and Chas. Goldziher.
*No. 30. Latin-American universities and special schools. Edgar E. Brandon. 30 cts.

1913.

*No. 1. Monthly record of current educational publications, January, 1913. 5 cts.
*No. 2. Training courses for rural teachers. A. C. Monahan and R. H. Wright. 5 cts.
*No. 3. The teaching of modern languages in the United States. Charles H. Handschin. 15 cts.
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*No. 7. College entrance requirements. Clarence D. Kingsley. 15 cts.
*No. 8. The status of rural education in the United States. A. C. Monahan. 15 cts.
*No. 11. Monthly record of current educational publications, April, 1913. 5 cts.
*No. 12. The promotion of peace. Fannie Fern Andrews. 10 cts.
*No. 13. Standards and tests for measuring the efficiency of schools or systems of schools. 5 cts.
No. 15. Monthly record of current educational publications, May, 1913.
*No. 16. Bibliography of medical inspection and health supervision. 15 cts.
*No. 18. The fifteenth international congress on hygiene and demography. Fletcher B. Dresslar. 10 cts.
No. 19. German industrial education and its lessons for the United States. Holmes Beckwith.
*No. 20. Illiteracy in the United States. 10 cts.
*No. 21. Monthly record of current educational publications, June, 1913. 5 cts.
*No. 22. Bibliography of industrial, vocational, and trade education. 10 cts.
*No. 23. The Georgia club at the State Normal School, Athens, Ga., for the study of rural sociology. E. C. Branson. 10 cts.
*No. 24. A comparison of public education in Germany and in the United States. Georg Kerschensteiner. 5 cts.
*No. 25. Industrial education in Columbus, Ga. Roland B. Daniel. 5 cts.
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*No. 38. Economy of time in education. 10 cts.
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*No. 40. The reorganized school playground. Henry S. Curtis. 10 cts.
*No. 41. The reorganization of secondary education. 10 cts.
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*No. 46. Educational directory, 1913. 15 cts.
*No. 47. Teaching material in Government publications. F. K. Noyes. 10 cts.
*No. 48. School hygiene. W. Carson Ryan, jr. 15 cts.
*No. 49. The Farragut School, a Tennessee country-life high school. A. C. Monahan and Adams Phillips. 10 cts.
*No. 50. The Fitchburg plan of cooperative industrial education. M. R. McCann. 10 cts.
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*No. 58. Educational system of rural Denmark. Harold W. Foght. 15 cts.
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No. 60. Statistics of State universities and other institutions of higher education partially supported by the State, 1912-13.

1914.

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*No. 7. Monthly record of current educational publications, March, 1914. 5 cts.
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*No. 11. Monthly record of current educational publications, May, 1914. 5 cts.
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*No. 27. Agricultural teaching. 15 cts.
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*No. 31. Report on the work of the Bureau of Education for the natives of Alaska. 25 cts.
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